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EFFECT OF INTRA-PARTUM AND NEONATAL ADMINISTRATION OF SYNTHETIC VITAMIN K ANALOGUES ON THE NEWBORN

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The knowledge that persistent haemorrhage may occur spontaneously or from trivial injuries in the newborn is centuries old. No satisfactory explanation, however, was forthcoming either of this bleeding or of the observation that the coagulation time has a tendency to increase during the first five days of life and to return to normal before the tenth day (Rodda, 1920). The discovery of vitamin K in alfalfa and certain liver fats and of its relation to plasma prothrombin (Dam, 1934 ; Dam *et al.*, 1936), and the recognition of prothrombin deficiency as an important cause of haemorrhage in man, suggested a new approach to the problem of this haemorrhagic tendency. In five healthy and otherwise normal babies Waddell and Guerry (1939) showed that coincidently with the prolonged coagulation time there was a variable hypoprothrombinaemia during the first five days of life. This has subsequently been confirmed, while the present work was in progress, by isolated estimations between birth and the age of 1½ years (Dam *et al.*, 1939), and by repeated estimations on the same newborn babies (Nygaard, 1939 ; Quick and Grossman, 1940). It has been demonstrated that persistent haemorrhage may occur during the period of prothrombin deficiency if the level falls below 30 per cent. of normal (Nygaard, 1939), and that icterus gravis neonatorum and hydrops congenitus are also characterized by hypoprothrombinaemia (Dam *et al.*, 1939).

From this association of hypoprothrombinaemia with visible haemorrhage the question must arise: Is there any relation between prothrombin deficiency and the incidence or extent of intracranial haemorrhage the result of birth injury? Recent literature and reports are very emphatic on the frequency of intracranial haemorrhage. It was stated to be the cause of death in fifty-three out of 157 stillbirths, and in fifty-two—all less than four days old and thirty-five premature—out of 142 neonatal deaths for which necropsy was performed in the Simpson Memorial Maternity Pavilion of the Royal Infirmary, Edinburgh, during 1939. In a large series of cases and with strict criteria of diagnosis Roberts (1939) establishes that 1 to 2 per cent. of all births show marked clinical manifestations of intracranial haemorrhage, that 85 per cent. of these babies die in the first three days of life, and that 25 per cent. of the survivors show more or less severe evidence of motor or mental involvement. On the grounds that blood is found in the cerebrospinal fluid in 12 per cent. of all births he believes that subclinical haemorrhages are more frequent. Hess (1939) stresses the high incidence of symptoms of intracranial haemorrhage in premature births. The present investigation was undertaken, therefore, in an attempt to answer the following questions:

1. Is the prothrombin content of the blood lowered at birth or during the early neonatal period? Can any such deficiency be related to the occurrence of intracranial haemorrhage in the newborn?

2. Does any condition before or during labour affect the prothrombin level of the newborn?

3. If Question 1 can be answered in the affirmative does vitamin K have such an effect upon the prothrombin index as to suggest that its administration to the newborn may reduce the incidence or extent of intracranial haemorrhage? If so, is there any appreciable difference in the effect of oral and parenteral administration?

4. Can a similar effect be obtained by the administration of vitamin K to the mother ante-natally?

The structure of the active constituent of alfalfa (vitamin K_1) has recently been determined to be 2-methyl-3-phytyl-1 : 4-naphthoquinone (Binkley *et al.*, 1939), but of all the naphthoquinones tested for anti-haemorrhagic properties in the chicken, 2-methyl-1 : 4-naphthoquinone was found to be the most effective (Thayer *et al.*, 1939 ; Fieser *et al.*, 1939). Its synthetic preparation and the testing of its purity by physico-chemical methods (Pinder and Singer, 1940) suggested that 2-methyl-1 : 4-naphthoquinone was a suitable substance for clinical trial in the neonatal period. Its vitamin K activity and therapeutic value in the adult have been demonstrated by Macfie *et al.* (1939).

Method

The method used for the estimation of prothrombin (Ziffren *et al.*, 1939) is a modification of that devised by Quick *et al.* (1935), and has been shown to compare favourably in accuracy with the more elaborate quantita-

tive technique of Warner *et al.* (1936). It has the further merit of extreme simplicity.

1 c.cm. of whole blood, freshly drawn from the patient, is added to 0.1 c.cm. of a thrombokinase solution in a serological tube (measuring approximately 8 × 1 cm.). The tube is immediately inverted over the thumb to ensure thorough mixing, is immersed in water at 37° C., and is tilted subsequently every two or three seconds. The time required for clot formation is expressed as a percentage of the coagulation time of a normal adult under the same circumstances. The resultant figure is equivalent to the "prothrombin index" (Illingworth, 1939).

The thrombokinase solution was prepared by grinding the lungs of a freshly killed rabbit in normal saline. (1 c.cm. of saline is added to each 1 gramme of lung tissue.) The mixture, allowed to stand for three or four hours, was ground periodically during this time and was then filtered through several layers of gauze. The filtrate was kept in stoppered tubes in a refrigerator and retained full activity for five to seven days. Before use, and every two or three days during use, each specimen was standardized with the blood of the same normal adult.

To minimize trauma and to make the individual results strictly comparable, blood was withdrawn through the anterior fontanelle of the babies and from the arm vein of the normal adult with a 12 S needle into an identical clean syringe. Where possible, specimens of cord and maternal blood at the end of the second stage of labour were obtained, and thereafter were taken from the infant on three occasions during the first week of life. In a few cases permission was given to take more frequent specimens. In this way it was hoped that a representative series of results would be obtained over a sufficient number of cases.

The Investigation

Estimations of the prothrombin index during the first week of life were made in fifty-four cases. Of these, fifty were vertex deliveries, forty-four spontaneous, six instrumental, and three assisted breech deliveries; one was a Caesarean section at term for a partial placenta praevia. At birth the cord blood was examined in thirty-two cases. The prothrombin index varied within a wide range, and the variation apparently bore no relation to any feature of the labour or the delivery.

In fifteen cases simultaneous specimens were taken of maternal and cord blood (Table I). It was found that the prothrombin index of the maternal blood was constantly above 75 per cent., regardless of the length of labour and the type of delivery. Of the five maternal toxaemias in which both cord and mother's blood were examined the prothrombin index lay within normal limits in three cases but showed a significant deficiency in two—a severe toxaemia and an eclampsia. Both had experienced a period of low food intake and a prolonged complicated labour during which more than one inhalation anaesthetic had been given. The prothrombin indices were respectively 66 and 60 per cent. There was no abnormal bleeding post partum, and the usual liver tests failed to reveal any deficiency. Nevertheless clinical recovery was considerably slower than in another case of eclampsia at the same period of gestation and with a similar history and labour, the prothrombin index of which was 90 per cent. It is possible, as Stewart and Rourke (1939) suggest, that estimation of the prothrombin index may prove a valuable indication of liver damage. In five cases of accidental haemorrhage there was no appreciable prothrombin deficiency. The prothrombin index of the cord blood varied distinctly with that of the mother, and averaged some 15 to 20 per cent. less.

TABLE I.—*Relation of Prothrombin Index of Maternal and Cord Blood in Control Series*

Series	Labour<24 hours			Labour>24 hours			Aggregate		
	No.	Mother	Cord	No.	Mother	Cord	No.	Mother	Cord
		%	%		%	%		%	%
Spontaneous ..	4	78	54	4	81	69	8	79	62
Complicated labour	5	79	70	2	80	49	7	80	64
Maternal toxaemia	3	77	69	2	80	49	5	77	61
Total control ..	9	79	63	6	80	64	15	80	63

In the fifty-four cases in which repeated estimations were done during the first few days of life the outstanding feature is the extreme variation in the prothrombin index both between different individuals on the same day and in the same case on different days (Fig. 1). An appreciable decrease from the cord estimation can often be demonstrated within twenty-four hours, and this fall in the prothrombin index continues, reaching its lowest value from thirty-six to eighty-four hours post partum. At this time the clot formed in the tube is soft and fluid. About the fifth day post partum the prothrombin level rises

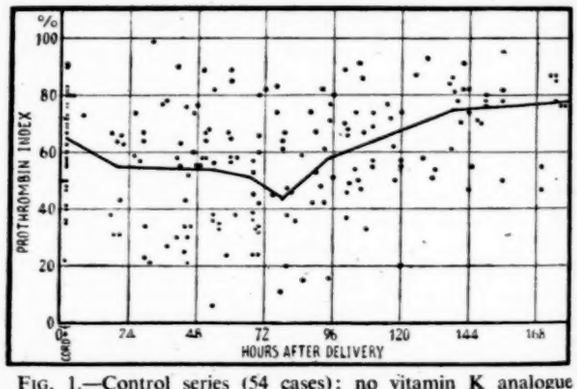

FIG. 1.—Control series (54 cases); no vitamin K analogue given. Note increase in first three days and the great variation of the prothrombin index on each side of the mean (continuous line).

TABLE II.—*Relation of Prothrombin Index of Cord Blood to Prothrombin Deficiency during First Week*

		Spontaneous Delivery								All Cases								
		No. of Cases	Cord	Hours Post Partum							No. of Cases	Cord	Hours Post Partum						
				Less than 24	Less than 48	Less than 72	Less than 96	Less than 120	Less than 144	More than 144			Less than 24	Less than 48	Less than 72	Less than 96	Less than 120	Less than 144	More than 144
			%	%	%	%	%	%	%	%		%	%	%	%	%	%	%	%
Control series	Cord prothrombin index >65%	11	76	71	60	67	66	69	82	76	13	77	71	60	68	66	67	82	76
	Cord prothrombin index <65%	8	53	49	28	42	45	58	65	78	12	49	49	30	33	36	58	65	78
Vitamin K analogue within 24 hours post partum	Cord prothrombin index >65%										4	80	72*	78	87	87	74	75	
	Cord prothrombin index <65%										3	41	—	70	84	89*	77	76	

* One reading only.

sharply, to become stabilized at about 75 per cent. From this level it gradually rises over a period of months.

The extent of the decrease in the prothrombin index is influenced by the following factors:

1. *The Prothrombin Index of the Cord Blood.*—Table II shows the relation of cord prothrombin values respectively above and below the mean, which was found to be 65 per cent. (Fig. 1), to the subsequent deficiency in the first few days of life. The comparison is especially marked in the spontaneous series, where all were otherwise healthy babies.

2. *Abnormal Delivery.*—The prothrombin index of the cord blood of cases in which labour has been uncomplicated differs little from the index of those in which operative intervention has been necessary, but the fall below normal is disproportionately greater in the latter series (Table III). That this

TABLE III.—*Relation of Prothrombin Index in Newborn to Labour and Ante-natal Conditions*

Type of Case	No. of Cases	Mother	Cord	Hours after Birth						
				<24	<48	<72	<96	<120	<144	>144
		%	%	%	%	%	%	%	%	%
Spontaneous delivery: healthy mother:										
Labour <24 hours:	28	78	62	58	60	57	51	65	76	81
Labour >24 hours:	11	81	69	54	52	54	55	69	78	65
Operative delivery ..	10	80	60	50	41	38	40	47	72	77
Maternal toxaemia ..	11	77	59	51	51	58	49	61	65	71
Prematurity	7	75	54	—	54	58	55	57	—	74

increased deficiency is a consequence of trauma and is not a sequel to the method of feeding used in the babies who could not be lifted is illustrated by Fig. 2. Breast-feeding was started on the first day in thirty-five cases. To the remaining eighteen babies diluted unsterilized breast milk was given for a varying period, which was in no case less than two days.

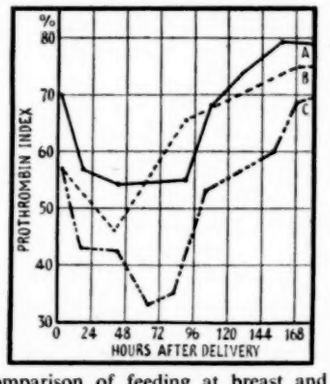

FIG. 2.—Comparison of feeding at breast and with diluted unsterilized breast milk from a bottle. A = breast-fed from first day. B = spontaneous delivery, fed with diluted unsterilized breast milk from first day. C = assisted delivery, fed with diluted unsterilized breast milk from first day.

The curves formed by plotting the daily mean prothrombin estimations are closely comparable for the spontaneous deliveries in the two series. The curve obtained after a complicated labour, however, shows a much greater prothrombin deficiency and an appreciable lag in its spontaneous restoration. In the adult with an already deficient prothrombin a similar post-operative drop is found, some four or five times greater than that which occurs in the normal subject (Stewart and Rourke, 1939).

3. *Maternal Toxaemia.*—Severe toxaemia may cause a degree of hypoprothrombinaemia in the mother, which is reflected in the lowered prothrombin index of the cord blood. The deficiency in the first few days of life is apt to be increased by the high incidence of instrumental deliveries in such cases.

The extent of the fall in the prothrombin index does not, however, appear to be greatly influenced by the length of the labour in spontaneous deliveries or by prematurity in the infant.

Neonatal Administration of Synthetic Vitamin K Analogues

A vitamin K analogue was given in the early neonatal period to thirty-six babies—eighteen spontaneous, fourteen instrumental vertex, and two breech deliveries, and two Caesarean sections. The substances used were:

(i) 2-methyl-1:4-naphthoquinone, 5 mg. dissolved in 1 c.cm. of "alcoholized"[1] oil and suitable for oral use or for injection. Orally, the quinone was given to fifteen babies in 2.5-mg. doses—either two or four such doses immediately before successive feeds. This latter is essential, as the substance has an unpleasant taste and exerts an irritating effect upon the mouth and throat, causing intense salivation. On only one occasion did true vomiting follow its administration in a feed. By intramuscular injection six cases were given 5 mg. and six 2.5 mg. One case showed signs of local irritation at the site of injection.

(ii) Diacetyl-2-methyl-1:4-naphthohydroquinone, which is made up in arachis oil for oral use in a concentration of

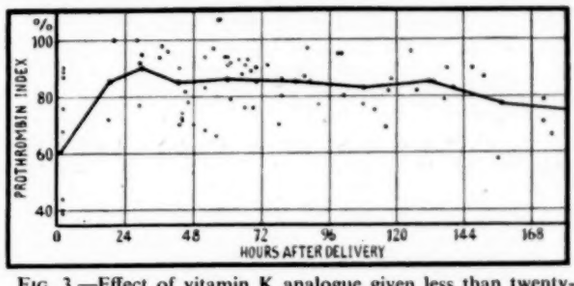

FIG. 3.—Effect of vitamin K analogue given less than twenty-four hours after delivery (20 cases). Note congregation of prothrombin index round mean (continuous line). Compare with Figs. 1 and 5.

15 mg. per c.cm., was used in nine cases. As this substance is less unpleasant to take and causes only slight salivation when followed immediately by a drink it was given in one dose of 10 mg.

The effect of the administration of these substances within twenty-four hours of birth (twenty cases) is to raise the prothrombin index to 80–90 per cent. and to stabilize it at that level during the first few days of life (Fig. 3). This effect appears to be independent of the cord prothrombin index, of the ante-natal condition, of prematurity, and of the type and duration of labour. Though the two series are not strictly comparable the quinone given orally appeared to be less potent than the same dose of quinol diacetate. In the doses given the quinol diacetate corresponded closely in activity to the quinone parenterally, and there was no difference in the effects produced by the injection of 2.5 mg. and 5 mg. of the quinone (Table IV).

TABLE IV.—*Vitamin K Analogue given less than 24 Hours after Birth*

	No.	Spontaneous	Abnormal labour	Cord	Hours after Birth						
					<24	<48	<72	<96	<120	<144	>144
				%	%	%	%	%	%	%	%
Oral naphthoquinone	8	2	6	56	88	74	80	82	78	89	69
Oral quinol diacetate	6	5	1	—	84	90	93	89	95	85	90*
Naphthoquinone:											
Injection of 5 mg.	3	1	2	67	—	85	90	89	95*	83	—
Injection of 2.5 mg.	3	–	3	—	—	90	87	87	75*	87	—
Total	20	8	12	57	86	85	86	85	83	85	75

* One estimation only.

The suggestion that 2-methyl-1:4-naphthoquinone by intramuscular injection had unusual rapidity of action (Macfie *et al.*, 1939) is amply confirmed by the effects shown in five cases so treated and specially tested for this purpose.

[1] The ethyl esters of the mixed fatty acids of arachis oil.

In one case an increase from 44 to 63 per cent. was noted in 100 minutes, and in another from 50 to 85 per cent. in 150 minutes. The effect is slight in the first two hours after oral use, but thereafter the rapidity of the increase compares favourably with that obtained by injection. The rate of this increase, expressed as a percentage of the original prothrombin index, is represented graphically in Fig. 4. To three abnormal deliveries—a forceps delivery,

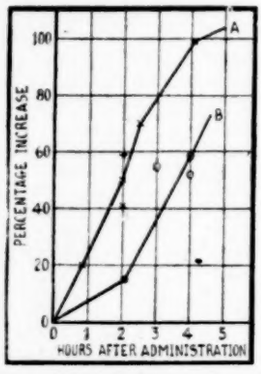

FIG. 4.—Showing rapidity of action expressed as a percentage increase on the original prothrombin index. A = (×) by injection, 5 cases; B = (⊙) orally, 4 cases.

a forceps in an eclamptic, and a breech extraction—and to one premature baby a second dose of vitamin K analogue was given, respectively on the sixth, third, ninth, and fifth days. In each case it was again effective in raising the prothrombin index. With the dosage used there was no evidence of pathological coagulation, gastro-intestinal upset, or other untoward effects in any case. No delayed effects were observed in babies who have subsequently attended the infant clinic. One baby in this series died on the third day after a trial of labour and lower segment Caesarean section. Necropsy showed the cause of death to be atelectasis.

Administration of Synthetic Vitamin K Analogues Ante-natally

Thirty-one mothers were given a vitamin K analogue ante partum. Twenty-nine—nineteen spontaneous, eight abnormal deliveries, and two Caesarean sections—were treated during or immediately before labour, and in two cases the last administration was more than twenty-four hours before delivery.

Three cases received 50 mg. of the quinol diacetate in one dose orally. 2-methyl-1:4-naphthoquinone, made up in 10-mg. tablets, was given to nineteen cases, as follows: Eleven cases, 50 mg.—30 mg. followed by 20 mg. at an hour's interval during labour; four cases, 30 mg. in a single dose during labour; one case, 80 mg. in two doses of 40 mg. at an hour's interval during labour; three cases, 100 mg. in three doses of 40, 40, and 20 mg. on three successive days before induction of labour. The quinone was given by intramuscular injection to nine mothers—four receiving 10 mg. and five 15 mg.

In these cases the effect on the prothrombin index during the first week of life was qualitatively identical with that obtained by giving the same substances directly to the baby during the first twenty-four hours after birth. The effect was independent of the length of labour, the type of delivery, prematurity (three cases), the ante-natal condition—one case of eclampsia (Table V), and the method of administration (Table VI). 15 mg. by injection, however, produces an effect closely similar to that from 50 mg. orally but slightly greater than that following 10 mg. parenterally or 30 mg. by mouth. There appears to be no advantage in a dose greater than 50 mg. by

TABLE V.—*Vitamin K Analogue to Mother in Labour. Relation of Prothrombin Index of Newborn to Duration and Type of Labour; Ante-natal State; Prematurity*

	No.	Mother	Cord	Hours after Birth						
				<24	<48	<72	<96	<120	<144	>144
		%	%	%	%	%	%	%	%	%
Spontaneous delivery:										
Less than 24 hours' labour	14	85	78	82	77	80	83	86	88	85
More than 24 hours' labour	5	78	79	—	85	77	81	94*	85	—
Total	19	83	78	82	80	80	83	87	86	85
Operative delivery (including 2 Caesarean sections in labour)	10	82	80	80	83	79	78	83	88	—
Prematurity	3	—	—	—	80	82	79	—	89	—
Eclampsia	1	—	—	—	78	71	—	86	—	—

* One estimation only.

TABLE VI.—*Vitamin K Analogue to Mother. Relation of Prothrombin Index in Newborn to Method of Administration and Dose to Mother.*

	No.	Time of Administration (Hours before Birth)			Cord	Hours after Birth						
		Longest	Shortest	Mean		<24	<48	<72	<96	<120	<144	>144
					%	%	%	%	%	%	%	%
Injection:												
10 mg. ..	4	20	½	8	76	—	78	72	74	80	87	—
15 mg. ..	5	10	1	6	91	89	79	86	88	85	89	85
Total ..	9	20	½	7½	83	89	79	78	81	83	88	85
Orally:												
30 mg. ..	4	8	½	3	78	—	75	76	74	80	89*	—
50 mg. ..	12	20	3	9½	75	79	80	81	84	92*	88	85
80 mg. ..	1	—	—	13	70	—	97	79	—	—	81	—
Quinol, 10 mg.	3	9	3	6	89*	78*	85	84	77	84	85*	93*
Total ..	20	20	½	6½	75	79	81	80	82	85	86	87

* One estimation only.

mouth. By both methods the optimum time for administration of vitamin K analogue appears to be between twelve and four hours ante-partum (Table VII).

TABLE VII.—*Vitamin K Analogue to Mother. Relation of Prothrombin Index in Newborn to Time of Administration before Delivery.*

Method and Time of Administration	No.	Cord	Hours after Birth						
			<24	<48	<72	<96	<120	<144	>144
		%	%	%	%	%	%	%	%
Orally:									
More than 24 hours before delivery ..	2	70	—	62	40	55	72	—	86
24–12 hours before delivery	5	73	80	—	82	79	—	83	—
12–4 hours before delivery	11	87	82	79	83	83	88	86	84
Less than 3 hours before delivery	4	—	78	75	76	76	79	85	85
Total less than 24 hours before delivery ..	20	78	79	81	80	82	85	86	87
Injection:									
24–12 hours before delivery	1	60	95	—	57	—	80	—	—
12–4 hours before delivery	6	89	89	79	83	86	85	87	87
Less than 3 hours before delivery:									
(i) 50 mins. before	2	—	—	80	—	91	—	94	—
(ii) 20 „ „		86	—	78	—	65	—	—	—
Total less than 24 hours before delivery ..	9	83	89	79	78	81	83	88	85

The effect of oral administration twenty-four to twelve hours before delivery closely resembles that obtained when the substance is given twelve to four hours before (Fig. 5); but in one case injected twenty hours and in two cases where the last oral doses were given respectively

twenty-six and forty-eight hours before delivery the prothrombin index fell about the second or third day to values which were approximately the same as those of the control series. It appears, therefore, that the maximal effect will be obtained in the newborn if an adequate dose is given less than twelve and more than four hours before delivery and that no advantage to the child is to be gained by prolonged ante-natal administration. Three cases were treated less than one hour before delivery—two by injection and one orally. Injection of 10 mg. twenty minutes before birth was followed by an appreciable drop on the

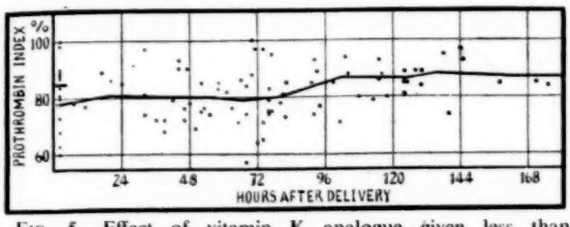

FIG. 5.—Effect of vitamin K analogue given less than twenty-four hours before delivery. Note raised cord prothrombin index and congregation of prothrombin index round mean (continuous line). Compare with Figs. 1 and 3.

third day, but 30 mg. orally thirty-five minutes before and 15 mg. by injection fifty minutes before appeared to be fully active in maintaining the normal prothrombin index. It is not possible, however, in these isolated examples to be certain to what extent the effect was due to the vitamin K analogue.

While ante-partum administration had little effect on the mother's blood when estimated at the end of the second stage of labour, it was found that it raised the prothrombin index of the cord blood almost to the maternal level. The value of this prothrombin increase is apparent, especially in abnormal delivery.

With the doses used there were no unpleasant reactions which could be attributed to the drug. Placental separation appeared to be entirely normal, there was no gastro-intestinal upset, and no pathological thrombosis was detected clinically. No accurate measure of third-stage and post-partum bleeding was taken, but clinically in no case was the loss noted to be other than normal.

Effect on Cases of Intracranial Birth Injury

Sixteen cases showed symptoms of cerebral irritation immediately after birth, which varied from cyanosis and "murmuring" to extreme restlessness. In fourteen of these there had been abnormal pregnancy or labour:

Pre-eclamptic toxaemia	3	Breech delivery	2
Eclampsia	2	Prolonged labour (flat pelvis)	1
Prematurity	2	Caesarean section	1
Instrumental delivery	9		

In every case examined the cord prothrombin index was unduly low (Fig. 6). Spontaneous remission occurred with routine sedative treatment in three cases during the first two or three days. Where the vitamin K analogue had been given shortly after delivery two babies were symptom-free on the second day and another was greatly improved. Of the ten abnormal deliveries in which it had been given less than twenty-four hours before birth, in only one (a Caesarean section in labour) did the child develop any symptoms of cerebral irritation.

Exacerbation of symptoms occurred in seven cases on the second or third day. Estimations carried out at this time revealed a severe prothrombin deficiency in five of these. Symptoms were completely relieved in three cases within twenty-four hours of the addition of the vitamin K analogue to the usual treatment by rest and sedatives. In one of the other two babies, whose mother had been given 100 mg. of the quinone more than twenty-four hours before delivery, there was a low prothrombin index on the third day, but the subsequent restoration followed a normal course. The other baby was given

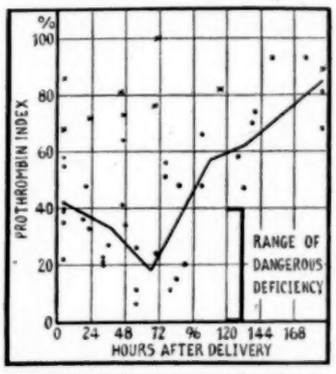

FIG. 6.—Prothrombin index in cases showing signs of cerebral irritation. • = untreated with K analogue. × = 2 cases treated with K analogue (see text).

no vitamin K analogue and showed an extreme and prolonged deficiency of prothrombin, which was later associated with marked anaemia.

Fits developed for the first time on the third day in one baby to whom 10 mg. of the quinone had been given orally during the first day after birth by breech extraction. The prothrombin index was 76 per cent. Oral quinone raised the index to 89 per cent.; but the fits were not affected, and they continued intermittently for nearly two months. Another baby—an instrumental delivery from an eclamptic mother and treated with quinol diacetate at birth—had symptoms of cerebral irritation which became worse on the third day. The prothrombin index was 73 per cent. The index was raised to 100 per cent. by a second dose of quinol diacetate, and simultaneous clinical improvement was noted. Here the general condition and its rapid relief suggested an acute exacerbation of a cerebral oedema, whereas delivery and symptoms in the first case pointed to direct cerebral injury.

In no case was bile absent from the meconium or stools. Clinical icterus developed in three cases, in only one of which was there a low prothrombin index. Another had previously been treated with oral quinone; and the third, whose prothrombin index was constantly over 70 per cent., was jaundiced for six weeks. Treatment with adexolin did not have any effect upon the degree of prothrombin deficiency.

Discussion

The control series shows that in apparently normal infants the prothrombin index at birth is usually about 60 per cent. and may fall in the first three days of life to dangerously low levels. Thereafter it rises spontaneously to 70–80 per cent., and is maintained at that level for some months. This confirms the results of other workers (Waddell and Guerry, 1939; Nygaard, 1939; Quick and Grossman, 1940). Estimations done in babies born after abnormal labour or of mothers suffering from severe toxaemia suggest that the type of delivery and the ante-natal condition are factors which influence the prothrombin level in the newborn. Where 2-methyl-1:4-naphthoquinone or diacetyl-2-methyl-1:4-naphthohydroquinone is given to the baby after birth the prothrombin index rises to and remains within normal limits. A similar result has been obtained by the use of natural vitamin K (Waddell

and Guerry, 1939; Nygaard, 1939). It is held, therefore, that the reserve of prothrombin or of vitamin K is not adequate to maintain the prothrombin level in the newborn until the time when vitamin K is absorbed in sufficient quantities from the alimentary canal. In the adult intestine vitamin K is absorbed direct from the food in the presence of bile, and from the colon, where vitamin K may be synthesized by bacterial action.

Milk is a poor source of vitamin K, and in the newborn the contents of the intestine are sterile. Hence it has been assumed that enough vitamin K cannot be absorbed until bacterial invasion of the bowel occurs. Breast-feeding or the use of unsterilized breast milk on the first day should assist this synthesis by supplying numerous harmless bacteria, but does not afford any protection against the fall in plasma prothrombin. Other factors also may be involved. It is not known, for instance, whether the composition of bile in the newborn is suitable for optimal absorption of vitamin K. Jaundice and prothrombin deficiency do not necessarily coexist. The postulation, however, that icterus simplex neonatorum is due to excessive haemolysis and to functional immaturity of the liver (Rich, 1930; Ross *et al.*, 1937) inevitably suggests that deficient synthesis may also be a factor in neonatal hypoprothrombinaemia.

There would seem to be no doubt that abnormal bleeding in the newborn coincides with excessive prothrombin deficiency. The association of an unduly low prothrombin index, generally where there has been maternal toxaemia or difficult labour, with the occurrence of symptoms of intracranial damage is shown in fourteen cases in this paper. Moreover, at the time when the prothrombin index is lowest and the clot formed *in vitro* most fluid there is often an increase in the signs of cerebral irritation. That a secondary oozing has occurred through this soft clot, possibly loosened from a birth injury by restlessness or a bout of crying, seems to be a reasonable conclusion. The rapidity with which symptoms were relieved after the use of vitamin K analogues and the infrequency of their occurrence when the mother has been treated suggest that the theoretical value of the naphthoquinones in suspected intracranial haemorrhage is worthy of further therapeutic trial.

It is evident that prevention of the prothrombin deficiency will decrease the incidence and severity of complications in the newborn. In most normal babies early breast-feeding will prevent abnormal or prolonged lowering of the plasma prothrombin. Adequate administration of vitamin K analogue to the mother less than twenty-four hours before delivery leads to its rapid absorption into the foetal circulation, and appears to supply a store of vitamin K sufficient not only to raise to normal limits the prothrombin content of the baby's blood at birth but also to maintain it within normal limits during the early days of life. The constancy with which a normal plasma prothrombin was found at birth and its importance in the formation of strong adherent clots in any case of difficult delivery need no emphasis. Indeed, they suggest that this is by so much the most rational method of treatment that the administration of naphthoquinone at this time may become as routine as the use of vitamins A and D earlier in pregnancy.

A similar effect after birth, with a similar absence of any untoward reactions, is obtained when the vitamin K analogue is given in the first few hours of life. Injection of the naphthoquinone gives a speed of action comparable to that of blood transfusion, and its effect seems to be more lasting.

All these facts suggest that the administration of a vitamin K analogue, either to the mother between twelve and four hours before delivery or to the newborn, would appear to be especially indicated (1) in cases of maternal toxaemia; (2) in premature labour; (3) in cases of difficult or instrumental delivery; (4) where breast-feeding is not possible; (5) when any cerebral symptoms develop during the first few days of life; (6) in cases of haemorrhagic diathesis, icterus gravis neonatorum, and anaemia; and (7) where an operation is necessary on the newborn.

We wish to acknowledge our thanks to Glaxo Laboratories Ltd. for the supply of vitamin K analogues, and especially to Dr. Patricia Fitzsimons and Mr. A. L. Bacharach for their interest and help; to Sisters Somerville, Anderson, and Nixon for their care in the administration of the drug; and to Professor R. W. Johnstone and Professor Charles McNeil for permission to use the drug in certain cases under their charge.

REFERENCES

Binkley, S. B., McCorquodale, D. W., Thayer, S. A., and Doisy, E. A. (1939). *J. biol. Chem.*, **130**, 219.
Dam, H. (1934). *Nature*, **133**, 909.
—— Schönheyder, F., and Tage-Hensen, E. (1936). *Biochem. J.*, **30**, 1075.
—— Tage-Hensen, E., and Plum, P. (1939) *Lancet*, **2**, 1157.
Fieser, L. F., Campbell, W. P., Fry, E. M., and Gates, M. D., jun. (1939). *J. Amer. chem. Soc.*, **61**, 2559.
Hess, J. (1939). Discussion on paper by Roberts, M. H. (1939), *q.v.*
Illingworth, C. F. W. (1939). *Lancet*, **1**, 1031.
Macfie, J. M., Bacharach, A. L., and Chance, M. R. A. (1939). *British Medical Journal*, **2**, 1220.
Nygaard, K. K. (1939). *Acta obstet. gynec. scand.*, **29**, 361.
Pinder, J. L., and Singer, J. H. (1940). *Analyst*, **65**, 7.
Quick, A. J., Stanley-Brown, M., and Bancroft, F. W. (1935). *Amer. J. med. Sci.*, **190**, 501.
—— and Grossman, A. M. (1940). Ibid., **199**, 1.
Rich, A. R. (1930). *Johns Hopk. Hosp. Bull.*, **47**, 338.
Roberts, M. H. (1939). *J. Amer. med. Ass.*, **113**, 281.
Rodda, F. C. (1920). *Amer. J. Dis. Child.*, **19**, 269.
Ross, S. G., Waugh, T. R., and Malloy, H. T. (1937). *J. Ped.*, **11**, 397.
Stewart, J. D., and Rourke, G. M. (1939). *J. Amer. med. Ass.*, **113**, 2223.
Thayer, S. A., Binkley, S. B., McCorquodale, D. W., Doisy, E. A., Emmett, A. D., Brown, R. A., and Reid, O. D. (1939). *J. Amer. chem. Soc.*, **61**, 2563.
Waddell, W. W., jun., and Guerry, D. (1939). Ibid., **112**, 2259.
Warner, E. D., Brinkhous, K. M., and Smith, H. P. (1936). *Amer. J. Physiol.*, **114**, 667.
Ziffren, S. E., Owen, C. A., Hoffman, G. R., and Smith, H. P. (1939). *Proc. Soc. exp. Biol., N.Y.*, **40**, 595.

PERFORATED JEJUNAL ULCER FOLLOWING PARTIAL GASTRECTOMY

BY

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Acute perforation following partial gastrectomy is a rare condition, only two such cases being found among the records of the London Hospital for the last ten years. During the same period twenty cases of perforation following gastro-jejunostomy were recorded. I was called upon to deal with one case of perforated jejunal ulcer following partial gastrectomy, a report of which is here given, together with the record of the previous case.

Case I

In 1926 the patient, a woman aged 45, was admitted to the London Hospital, under Dr. Rowlands, with a three-years history of severe colicky epigastric pain radiating to the hypogastrium, not related to meals. Vomiting occurred about once a week, and relieved the pain. The pain and vomiting were worse for the three months prior to admission, and the vomitus was alleged to contain occasional streaks of blood. The appetite was poor and there was loss of weight. There was a history of melaena and dyspnoea on exertion.

On examination the patient had a sallow appearance, with pallor of the mucous membranes. No abnormal physical signs were found. A test meal revealed free HCl 0.28 per cent. and total acidity 80. A barium-meal radiograph showed a low hyperperistaltic stomach, an active pars pylorica and first stage of duodenum, and a defect on the inner aspect of the duodenal cap. The blood count showed erythrocytes,

3,900,000 per c.mm.; haemoglobin, 40 per cent.; colour index, 0.57; leucocytes, 3,440 per c.mm. Anisocytosis and poikilocytosis were present.

First Operation.—In April, 1926, an operation was performed by Mr. E. C. Lindsay. A chronic duodenal ulcer was found on the anterior aspect of the first part of the duodenum. Posterior gastro-jejunostomy and appendicectomy were performed. The appendix showed slight submucous fibrosis. The patient made an uninterrupted recovery and was discharged to a convalescent home.

SECOND ADMISSION

The patient did well at first, but had a relapse in 1927 and was readmitted to hospital with the history of recurrence of lower abdominal pain one month after operation, with diffuse distribution and no definite radiation. It was worse on the right side than the left, and was not related to food. There was occasional nausea but no vomiting, and a history of constipation since operation but no melaena. The appetite was good, but she had lost 8 lb. in two months. Examination showed a thin poorly nourished woman with no abnormal physical signs. The test meal showed free HCl 0.10 per cent. and total acidity 40.

On radiographic examination the barium meal was held up in the cardiac end of the stomach for a considerable time, owing apparently to a constriction of the body above the anastomosis. The stoma appeared to work when the meal passed the constriction, but most of the meal passed by way of the pylorus. During observation in the ward the patient had further melaena and more pain, particularly three hours after food.

Second Operation.—In view of the severity of the symptoms a second operation was performed by Mr. Lindsay in February, 1927. A large ulcer was found at the site of the old anastomosis, which showed marked constriction. The old duodenal ulcer was healed. The anastomosis was resected, the jejunum closed, and an anterior Polya partial gastrectomy performed. The amount of stomach removed from the pylorus measured 7.5 cm. along the lesser curve and 17 cm. along the greater curve. The patient made an excellent recovery and was discharged to a convalescent home.

In March, 1929, there was a further recurrence of symptoms consisting of epigastric pain and nausea. An *x*-ray picture showed evidence of a jejunal ulcer. Treatment by diet and alkaline powder controlled the symptoms effectively. In 1936 there was a recurrence of pain and vomiting, with one haematemesis and one attack of melaena. A radiograph revealed a delay at the stoma with evidence of jejunal ulcer. Medical treatment again resulted in an improvement.

THIRD ADMISSION

In December, 1938, the patient was readmitted to the London Hospital as a surgical emergency. There was a history of four days' increase in generalized abdominal pains after food. For the last four hours there had been acute generalized abdominal pain with nausea, but no vomiting, no melaena, and no haematemesis. On examination the patient presented an ill appearance and was lying very still, with a definite pallor, a cold moist clammy skin, and dry furred tongue. The abdomen showed a marked restriction of movement, with generalized tenderness most pronounced in the epigastrium, and board-like rigidity, particularly above the umbilicus. Diminution of liver dullness was found on percussion. The diagnosis of perforated anastomotic ulcer was made.

Third Operation.—This was performed by me for Mr. Lindsay. A right paramedian incision was made. Gas and much free fluid were found in the peritoneal cavity and a large perforation a quarter of an inch in diameter was present in the jejunum just distal to the anastomosis. This was embedded and covered over with omentum, and one local drainage tube was inserted. During the operation 350 c.cm. of saline was administered intravenously, and twenty-four hours later a blood transfusion of 400 c.cm. was given. The patient made an excellent and uncomplicated recovery, and on discharge to a convalescent home had no pain, nausea, or vomiting, and was enjoying a bland IV diet. Two months later in the follow-up of this case there had been a recurrence of vomiting.

FOURTH ADMISSION

The patient was readmitted for investigation in March, 1939, nearly four months after the perforation, with a history of repeated small vomits, streaked with blood on one occasion, together with periodic vague abdominal discomfort. The appetite was fair and there had been no loss in weight. Examination disclosed a thin woman with slight epigastric tenderness. A test meal showed free HCl 0.09 per cent., with total acidity 60. In forty-five minutes the free HCl was *nil* and total acidity 10; following which the HCl steadily rose to 0.2 per cent. in two and a half hours, with a total acidity of 84. A barium-meal radiograph showed narrowing and fixation of the efferent loop, causing delay in emptying, and a large residue of barium, in all probability due to jejunal ulcer.

A gastroscopic examination by Mr. Hermon Taylor showed the amount of stomach to be about half normal, with three inches of lesser curve. A considerable area of secreting mucosa was still present, with marked hyperplastic gastritis. The stoma was very greatly distorted and stenosed, tense oedema of the mucosa probably screening an ulcer beyond. The conclusion reached was that there was still an excess of gastric hyperplastic mucosa, with indirect evidence in favour of a persisting jejunal ulcer. The patient was discharged home on medical treatment—and the possibility of carrying out a further gastrectomy is under consideration.

Case II

The patient, a male aged 30, was admitted in March, 1935, to the London Hospital under Mr. Alan Perry, with the diagnosis of chronic duodenal ulcer. There was an eight-years history of periodic epigastric pain radiating to the back and keeping him awake at night, with no relation to meals. Occasional vomiting relieved the pain, which was also relieved by bismuth powder. There was no loss of weight and the appetite was good. Examination showed that the patient was a well-nourished man with no abnormal physical signs. A test meal gave free HCl 0.30 per cent., with total acidity 110, and a radiograph showed a "cup and spill" type of stomach which was very hypertonic, and a deformed duodenum. At an operation performed by Mr. Alan Perry multiple scars in the duodenum were found. An anterior Polya partial gastrectomy was done. The microscopical report on the stomach stated that there was focal chronic inflammatory infiltration, and the amount of stomach removed from the pylorus measured 5 cm. along the lesser curve and 9 cm. along the greater curve. The patient's recovery was uninterrupted, apart from prolapsed piles, and he was free from symptoms when seen on subsequent occasions in the follow-up department.

READMISSION TO HOSPITAL

In November, 1937, the patient was readmitted as a surgical emergency with a twelve-hours history of sudden onset of severe epigastric pain and sensation of faintness, the pain radiating to the left shoulder. On examination he was lying very still and presented an ill appearance. The temperature was 100.4°, pulse 120, and respirations 30. There was tenderness and rigidity in the upper abdomen, more pronounced on the left of the midline. Liver dullness was diminished on percussion. At operation (Mr. C. L. Heanley for Mr. Perry) free gas and fluid were found in the peritoneal cavity and there was a small perforation in the anterior wall of the jejunum half an inch distal to the line of the previous anastomosis. The perforation was sutured and suprapubic drainage carried out. An uninterrupted recovery was made, the post-operative test meal showing free HCl to be 0.18 per cent. and total acidity 63.

Discussion

Both of these were cases of chronic duodenal ulcer in the first place, with high acidity. In Case I gastro-enterostomy resulted in a considerable lowering of free HCl

from 0.28 per cent. to 0.10 per cent. and the total acidity from 80 to 40; but, nevertheless, jejunal ulceration ensued, even after partial gastrectomy, and in spite of symptomatic relief from medical treatment ran a progressive course to final perforation. In Case II, despite a partial gastrectomy, the final level of acidity was still high, the free HCl being 0.18 per cent. and the total acidity 63 (these being figures after the perforation had been successfully treated). The perforation occurred in a similar site in both instances—namely, in the jejunum just distal to the line of the anastomosis and on the anterior surface, therefore being truly jejunal.

In the subsequent follow-up and investigation of the first case the free HCl was 0.09 per cent. rising to 0.20 per cent., and the total acidity 60 rising to 84, and gastroscopy also showed hyperplastic gastritis with secreting mucosa in the remaining portion of the stomach. The actual perforation is of course only a complication of the persisting ulceration, but since partial gastrectomy was accepted as a treatment for duodenal ulcer cases with persistence of symptoms after it have been accumulating. The two cases reported suggest that if a partial gastrectomy must be done for a duodenal ulcer it should be a high one, and that a more radical or subtotal gastrectomy should be performed primarily in these cases of chronic duodenal ulcer with high acidity and hyperplastic gastritis rather than the less complete partial gastrectomy, the aetiological factor in ulcer production—namely, excess acid—being associated usually with a hyperplastic gastritis. Other aetiological factors, such as the ulcer diathesis with a fairly high family incidence, infection, poor surgical technique, and lack of medical care, undoubtedly may also play a part, but these as a rule are either not so prominent or can be more easily excluded. Little could be found in the literature with regard to perforation of anastomotic or jejunal ulcers into the peritoneal cavity following partial gastrectomy.

The incidence of gastro-jejunal ulcer following gastro-jejunostomy varies from 4 per cent. (Walton) to 24 per cent. (Strauss). After resection these figures fall considerably: 0.4 per cent. (Schwarz) and 10 per cent. (Gatewood). Gastro-jejunal ulcer usually occurs in the efferent loop near the anastomosis or actually at the anastomosis—jejunal 25 per cent. and marginal 75 per cent. (Starlinger). Penetration into neighbouring organs is more common than perforation, the incidence according to Starlinger being 5 to 6 per cent. in 2,500 cases of gastro-jejunostomy and 3 to 5 per cent. in 300 cases of resection.

Over the same ten-year period at the London Hospital the records showed five cases of gastro-colic fistula following partial gastrectomy, and two cases of peri-anastomotic abscess the result of slow perforation or leakage. Following gastro-jejunostomy twenty-four cases of gastro-colic fistula are recorded. Marshall and Kiefer state that post-operative jejunal ulcer can also occur after partial gastroresection, but does so with much less frequency than after partial gastro-enterostomy. Symptoms are usually severe, and intractable to medical treatment; there is also a tendency to bleed and to perforate into the abdominal cavity or colon. It is the general experience of those authors that post-operative ulcer is associated with persistently high gastric acidity.

Burke in his discussion of the operative mortality and morbidity of partial gastrectomy for gastric and duodenal ulcer in 606 consecutive cases gives a mortality rate of 5.44 per cent., but no case of perforation of an anastomotic or jejunal ulcer following this operation.

Lake mentions one case of perforated jejunal ulcer in a series of 198 followed-up cases of gastric and duodenal ulcer treated by partial gastrectomy. Such a complication, therefore, is an uncommon one, and its incidence in cases of chronic duodenal ulcer is likely to be kept low by the performance of partial gastrectomy at a level high enough to ensure definite diminution in the free HCl production and the associated area of hyperplastic gastritis in the stomach wall. Unfortunately this is associated with a higher primary operative mortality, and in some cases where there is a real ulcer diathesis ulcers tend to recur, whatever the treatment.

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BIBLIOGRAPHY

Bonar, T. G. D. (1924). *Lancet*, **2**, 261.
Burke, J. (1939). *Surg. Gynec. Obstet.*, **69**, 704.
Finsterer, H., and Cunha, F. (1939). Ibid., **68**, 1099.
Gatewood, L. C. (1930). *Trans. Amer. surg. Ass.* **48**, 142.
Lahey, F. H., and Swinton, N. W. (1935). *Surg. Gynec. Obstet.*, **61**, 599.
Lake, N. C. (1937). *British Medical Journal*, **2**, 49.
Marshall, S. F., and Kiefer, E. D. (1939). *J. Amer. med. Ass.*, **109**, 1341.
Paterson, H. J. (1906). *Lancet*, **1**, 491.
Short, A. R. (1931). *British Medical Journal*, **1**, 435.
Starlinger, F. (1930). *Arch. klin. Chir.*, **162**, 564.
—— (1932). *Ergebn. Chir. Orthop.*, **25**, 380.
—— (1939). *Wien. klin. Wschr.*, **52**, 905.
Strauss, A. A., Bloch, L., and Friedman, J. G. (1928). *J. Amer. med. Ass.*, **90**, 181.
Walton, A. J. (1930). *Textbook of Surgical Dyspepsias*, London.
—— (1934). *Brit. J. Surg.*, **22**, 33.
Wilkie, D. R. B. (1910). *Edinb. med. J.*, n.s. **5**, 316.

USE OF THE THIERSCH SKIN GRAFT

BY

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The rapid healing of any raw surface is important in minimizing a patient's discomfort and invalidity, but above all in obtaining the earliest and maximum return of function. Most raw surface areas are produced by accident or surgery. Skin grafting is the most prompt available method of obtaining healing of such an area, and it is the one which produces the least subsequent distortion. The general surgeon does not use skin grafting to full advantage. This can only be explained by a widespread unfamiliarity not only with its technique but with the results to be expected from its application. The Thiersch graft is the one most universally applicable, but certain conditions must be laid down for its use. If these, together with details of technique, are respected the results are good; if not they are correspondingly bad.

This paper is based on a review of all the Thiersch grafts done by the plastic surgery unit of the London County Council.* Special consideration has been given to cases in which the grafts partially or completely failed. Attention to various points will help to make the procedure of skin grafting more certain in the hands of a general surgeon. It may then be used as a prime method of treatment rather than as a last resort. It is significant that many of the conditions treated could have been dealt with more effectively by grafting at a much earlier stage in their clinical history. Moreover, primary skin grafting would have altogether prevented many of the gross deformities and much of the malfunction which have been seen.

* In all, 629 grafts; these include 535 surface grafts and ninety-four inlay grafts. Thirty others were excluded because of inadequate records.

Nomenclature and Technique

A true Thiersch graft—as used and described by Thiersch and Ollier—is an extremely fine "tissue-paper" epidermal graft which is now rarely employed for general purposes. What is commonly called a Thiersch graft is a thicker graft variously designated by the synonyms "split skin graft," "intermediate graft," and "dermo-epidermal graft." Gillies recommends the use of the term "razor graft" to distinguish these grafts from a "dissected graft" ("full thickness" or Wolfe graft). In this article the term "Thiersch graft" is used in its loose sense for all grafts cut with a razor.

The technique employed has been uniform in principle. It is essentially that evolved during and after the Great War by the Sidcup School of Plastic Surgery, where the Esser principle of pressure-grafting was applied and elaborated. It is well described by Kilner. (Details are considered later.)

Results Obtained

The conditions for which Thiersch grafts were used and the results obtained are analysed in Table I. Owing to a vast difference in prognosis, grafts on newly created surgical wounds (primary grafts) are here considered separately from grafts on long-standing (unhealed) or granulating areas (secondary grafts). The good results of primary grafts contrast with the poor results of secondary grafts.

TABLE I.—*Surface Grafts* (535 *Grafts*)

	Total No. of Grafts	Complete (100%) "Take"	Incomplete "Take"		Failure 0%	Undetermined "Take"
			Over 75%	Under 75%		
Primary—on Surgical Wounds; 391 Grafts						
Excision of scars: Burn scars	121	75	24	15	1	6
Post-traumatic scars	60	40	14	6	Nil	Nil
Post-infective scars	12	11	1	Nil	Nil	Nil
Excision of lupus	75	39	24	11	1	Nil
Excision of neoplasms (innocent and malignant)	25	15	8	2	Nil	Nil
Excision of *x*-ray and radium burns	5	Nil	5	Nil	Nil	Nil
Donor areas: of Wolfe grafts	20	16	2	2	Nil	Nil
of forehead flaps	17	11	2	2	1	1
of other flaps and pedicles	34	12	8	8	1	5
Correction of congenital deformities of ear	8	7	1	Nil	Nil	Nil
Correction of congenital deformities of fingers	6	4	2	Nil	Nil	Nil
Primary grafts for traumatic lesions	3	1	1	1	Nil	Nil
Unclassified	5	1	1	Nil	1	2
Total	391	232	93	47	5	14
Secondary—for Granulating Wounds; 144 Grafts						
Unhealed post-traumatic wounds	58	7	19	20	7	5
Unhealed burns	46	6	10	24	6	Nil
Unhealed infective lesions	18	5	5	3	5	Nil
Unhealed surgical wounds	14	2	2	4	6	Nil
Ulcerating *x*-ray and radium burns	4	Nil	1	2	1	Nil
Ulcerating active lupus	4	1	Nil	2	1	Nil
Total	144	21	37	55	26	5

Primary Grafts.—The results of 391 Thiersch grafts applied to surgically created surface wounds (Table II) show that in 83 per cent. of cases the "take" was either complete or good. These figures do not include inlay grafts, which are even more certain in their "take."

TABLE II

"Take" of Graft	No. of Cases	Approximate Percentage of Total
Complete—100%	232	59
Incomplete—over 75% approx.	93	24
" under 75% "	47	12
Complete failure—0%	5	1
Undetermined	14	4

A recently created and sterile raw tissue surface is the ideal base for a Thiersch graft. In this series nearly all the primary grafts were to surgical wounds produced by the eradication of a scar or disease focus. Recently created accidental wounds, after careful preparation and judicious excision of contaminated and devitalized tissue, provide the same ideal basis for a Thiersch graft. The wide-spread impression that skin will only "take" on fatty or fibrous tissue is quite erroneous: skin will do so on all tissue likely to be presented, with the exception of cartilage, bone devoid of periosteum, and tendon denuded of its sheath. The "take" is always exceedingly good on muscle. The good results of primary grafting should dispel any fear of creating a large raw surface area if the latter is thought necessary to the eradication of a disease, and any diffidence in dealing with extensive traumatic skin loss.

Secondary Grafts.—The results of 144 grafts applied to unhealed or granulating areas are given in Table III. In only 41 per cent. of cases was the "take" good or complete. Sepsis is the outstanding cause of these relatively poor results.

TABLE III

"Take" of Graft	No. of Cases	Approximate Percentage of Total
Complete—100%	21	14
Incomplete—over 75% approx.	37	27
" under 75% "	55	38
Complete failure—0%	26	18
Undetermined	5	3

Causes of Graft Failure and their Prevention

SEPSIS

In 72 per cent. of all cases in which the "take" was not complete, failure was attributable to surface sepsis. These infections are usually of low grade and cause little disturbance of the patient's general condition. Mixed infections by the pyogenic organisms—staphylococcus, streptococcus, *B. pyocyaneus*, and *B. proteus*—are usually present. The failure is due to the mechanical separation of the epithelium from its new bed by pus accumulation. Pure streptococcal infections associated with local erysipeloid reactions about a grafted area but not with pus formation usually do not affect the "take" of a graft. Graft failure is related to the amount of surface pus formation and not to the virulence of the organism.

A Thiersch graft placed on a weeping or purulent granulation will fail. Unhealthy septic granulations are characteristically hypertrophic, pale, and mushy. Granulation tissue can rarely be rendered sterile, but before grafting is carried out the infection can be reduced to a minimum by combining two procedures: (*a*) pre-operative treatment of the granulating area, and (*b*) removal of the granulation surface before applying the graft.

(*a*) *Treatment of a Granulating Area.*—Prolonged and frequent hypertonic saline baths are the most valuable aid in reducing surface infection. These should be used whenever the site of the lesion and the patient's general condition permit. Of local dressings the hypochlorites are the most generally useful. Regulated exposure of the granulating area to ultra-violet light, protected by a layer of paraffin gauze, helps to reduce surface discharge. *Pyocyaneus* infection is rapidly cleaned by dressing with 2 per cent. acetic acid or household vinegar. The importance of the patient's general condition cannot be overemphasized. Debilitated subjects attending as hospital out-patients with unhealthy granulating wounds rapidly

improve with in-patient treatment. This especially applies to lesions on the legs.

Under adequate treatment most granulating surfaces show a rapid diminution in the amount of exudate. The granulations become firm and of a bright pink colour, and even though surface cultures still grow organisms (*B. proteus* is the last to disappear) the areas can be grafted with a much greater chance of success. Antiseptics generally are inimical to skin growth, so it is important that the area be washed and dressed only with saline for two days preceding grafting.

If an unhealthy state of the granulations persists it is usually because of an underlying focus of infection—for example, sloughing tendon or bone sequestration. If there is no such obvious cause for the persistence of unhealthy granulations, and especially if previous grafts have failed, one must always consider the use of "pinch" grafts. Pinch grafts offer the only hope of success in such conditions, as exudate is able to escape without mechanical separation of the "pinches." In this way epithelization might be sooner obtained than it would be by waiting until conditions are adequate for the use of a Thiersch graft.

(*b*) *Removal of the Granulating Surface.*—In a further attempt to increase the relative sterility of the recipient area it has been the practice, where possible, to excise the area of an unhealed wound or remove granulation tissue by curettage. The graft is then placed on the newly created fibrotic but vascular base. As shown in Table IV, the results of grafts on areas so treated have been slightly better than in areas where the granulations were untouched. Moreover, less fibrosis is developed beneath these grafts, which consequently have a much better texture.

TABLE IV

"Take" of Graft	Granulations Left *in situ*	Granulations Removed
Complete—100%	6 (12%)	15 (16%)
Incomplete—over 75% approx.	11 (23%)	26 (28%)
" under 75% "	22 (46%)	34 (37%)
Complete failure—0%	9 (19%)	17 (19%)
Total number	48	92

HAEMATOMATA

After pus, blood is the most common cause of mechanical separation of the epithelium from its bed, resulting in complete failure of the graft or, more usually, a "patchy take." In 2 per cent. of the grafts of this series partial or complete failure was due to a haematoma beneath the graft. In most cases the haematoma was associated with infection. Most haematomas occurred under grafts to surgical wounds of the face, where local vascularity always makes absolute haemostasis more difficult. Absolute haemostasis on a graft-bed is essential, and it must be ensured by clamping and, if necessary, tying off major points, or by the pressure of hot and cold packs. Before fixing the pressure-dressing on a large graft where haemostasis has been difficult it is a wise precaution to syringe beneath the graft with normal saline from a dental syringe. Once haemostasis is established an effective pressure-dressing will ensure its persistence.

INADEQUATE FIXATION OF THE GRAFT

In only seven cases of this series was partial (five cases) or complete failure (two cases) directly attributable to inadequate fixation of the graft. In inexperienced hands this is a common cause of graft failure. The correct fixation of a graft and the application of the necessary pressure-dressing require patience. In general the graft is spread on tulle gras* and, with it, is sutured to the circumference of the wound, some of the anchoring stitches being left of sufficient length to tie over and so maintain the pressure-dressing. In some cases the skin is applied free to the wound. The graft should be so arranged as to cover the whole defect. Pressure may be applied by a stent mould: this is the method of choice for inlay grafts (the graft is introduced spread on the mould), but it has generally been abandoned for surface grafts owing to the ease with which it may shift. On surface grafts, wool soaked in equal parts of paraffin and acriflavine 1 in 1,000, wrung out and built up evenly over the area in flat plaques, is the usual dressing. The contour is made even, gauze pressure is applied, and the dressing is then tied to the area by the long ends of the anchoring sutures. Marine sponge fixed in the same way is used in some regions—it may be combined with paraffin and acriflavine wool. It is important to see that the pressure-dressing bulges over the edge of the graft, as most of the partial failures without obvious cause show defects about the circumference of the graft where the fixation and pressure have been inadequate.

The pressure-dressing is fixed by a firm crêpe bandage over wool, by elastoplast, or by "lastonet" and mastisol, according to the region. Mastisol is very useful in helping the fixation of all dressings. Limb splintage may be required.

Inlay grafts (cavity grafts), where the fixation and pressure are firmly maintained by a gutta-percha or stent mould, have universally given good results. Grafts on the forehead "take" exceedingly well owing to the ease of maintaining firm pressure-fixation against the skull. Conversely, about joints, on the chest and axilla, and on the neck, absolute fixation is always more difficult, and it is in these regions that most failures from inadequate fixation occur.

The primary pressure-dressing is left undisturbed for at least seven days. Though a graft "takes" sooner than this, and the dressing may be removed in about five days with success, the graft is still unstable on its new bed and may become separated. If, however, there is evidence of sepsis and discharge on the dressing it is wise to remove the pressure-dressing carefully after five days, as there may be areas of vital skin under which pus has not yet caused mechanical separation. A fresh pressure-dressing can then be reapplied to these areas, and by this means a graft which would otherwise be a failure is often preserved as a "patchy take."

Graft and Donor Area

Strict aseptic preparation of the donor area is important, and even the most trivial skin infections contraindicate its use as a graft. The thinner the graft is cut the more certain is its "take." If the graft is cut too thick, to include "full thickness" areas, not only is the prospect of "take" reduced but delayed healing by secondary intention is caused in the donor site. This increases the risk of bad scarring, with keloid formation. The donor area of a well-cut graft (usually the postero-lateral aspect of the thigh) should require only its primary

* Tulle gras is a large-mesh gauze (2 mm.) soaked in a mixture of petroleum jelly and balsam of Peru (1 per cent.). As made by the Anglo-French Drug Company, "tulle gras lumière" also contains 1 per cent. halibut-liver oil. Introduced by Gillies to skin-grafting, it has eliminated the practical difficulties of spreading and placing the graft, as the latter is very easily spread and handled on tulle gras. An effective substitute can be made in hospital from a coarse-mesh cotton gauze soaked in petroleum jelly and 1 per cent. balsam of Peru and sterilized in an autoclave.

dressing, which can be discarded in a week. It should heal without scar. Very often the donor sites are subsequently reversed. Though theoretically a Thiersch graft should contain no hair follicles, hair is often noted on grafted areas, especially if large. Hair growth may be very undesirable in certain regions, especially with inlay grafts. The inner aspect of the arm is the most useful non-hairy donor site.

Recipient Region

A study of the results in relation to the region grafted reveals that these are uniformly better in regions to which absolute fixation and firm pressure are easily applied—for example, the forehead, the upper face, and non-articular regions of the limbs. Otherwise there is no indication that grafts "take" better on some regions than on others. It seems that the local blood supply does not markedly affect the primary "take" of a Thiersch graft. The subsequent behaviour and stability of a graft are, however, greatly influenced by the local blood supply. A graft may "take" well on the area of a large chronic ulcer of the leg, only to break down again when walking is resumed. Thiersch grafts on the sites of old *x*-ray burns with their poor local vascularity often prove unstable and develop areas of breakdown and ulceration.

Conclusions

The results of primary Thiersch grafts applied to surgical wounds are uniformly good, as the potential causes of graft failure—sepsis, haematoma, and inadequate pressure-fixation—are all minimized by careful technique.

The results of Thiersch grafts applied secondarily to unhealed areas are by far inferior to the above because of the increased incidence of sepsis. This can be reduced by a period of careful preparation of the granulating area and, when practicable, removal of the potential infection by excision of the area or by scraping off the granulations.

By a wider and careful application of skin grafts to recent wounds many of the problems of secondary grafts to granulating areas could be eliminated, much prolonged invalidity would be reduced, and better functional results often obtained in a shorter period. Much of the ugly scarring, with bad contractures and deformities, which has been treated in this series would never have arisen.

I wish to thank the medical officer of health to the London County Council, and the medical superintendent of St. James Hospital, for permission to publish this article. I am indebted to Sir Harold Gillies, Mr. A. H. McIndoe, and Mr. Rainsford Mowlem for their kindly help and criticism.

REFERENCE

Kilner, T. P. (1934). *Post-grad. med. J.*, **10**, 176.

The Royal London Ophthalmic Hospital, better known as "Moorfields," has carried on in spite of the dislocation due to the war and the necessity for placing over eighty beds at the disposal of the Ministry of Health for air-raid and Service casualties. The annual report states that a complete ophthalmic service was afforded during 1939. At Moorfields itself eighty-eight beds were retained, and fifty-three were made available at St. Mary-at-the-Cross Hospital, Edgware—a total of 141 for civilian eye patients as compared with a normal complement of 200. The number of in-patients in 1939 was 3,636, and of out-patients 53,108. The report includes an analysis of the diseases and injuries of the in-patients, and of the operations performed in the in-patient and out-patient theatres. The hospital accounts show an excess of total income over total expenditure of £5,822.

BARBITURATE (SONERYL) POISONING

AN ACCOUNT OF A CASE SHOWING THE VALUE OF PICROTOXIN IN TREATMENT

BY

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I have seen a number of cases of barbiturate poisoning, which is becoming increasingly common. This is perhaps because barbiturates are widely used and can easily be obtained in spite of the prescribing restrictions. Large doses to cover a period are often prescribed, especially in out-patient hospital work, and by applying to one or more medical men a patient can easily obtain a store without their knowledge. It is impossible in most cases to know accurately the dose that has been taken. The outstanding features are coma, low blood pressure, respiratory failure, and in many cases a dusky colour.

Case Record

On January 17, 1940, a young woman of 26 went to bed at her hotel. The following morning the maid attempted to enter the room, but received no reply; after some delay an entry was forced and the woman was seen to be in deep coma. The hotel doctor was summoned and he found two empty bottles at the side of the bed. The chemist's name was on the bottles, and investigation proved that each bottle had contained twenty-five tablets of soneryl, a barbiturate which acts less rapidly than the pentothal group but far more rapidly than phenobarbitone. The prescription for the drug was issued by another doctor in September, 1939, but was not brought for dispensing until January this year. It is difficult to know exactly what dose was taken—it was at least 37 grains and at most 74 grains. From the date of dispensing, assuming normal use previously, perhaps 65 grains might be a fair estimate.

The patient was removed to a nursing home. On admission her pupils were small and non-reacting and all her reflexes were absent. Her colour was dusky, the pulse small and thready, and the blood pressure 85/50 mm. Hg. Breathing was stertorous, and frothy blood-stained mucus came from the mouth at intervals. The blood in this case may have come from the tongue, which was bruised by tongue forceps at the first attempt to secure an airway.

TREATMENT

The immediate treatment was: (1) injection of coramine; (2) washing out the stomach and filling with three-quarters of a pint of strong black coffee and 1 oz. of castor oil; (3) two-hourly injections of cardiazol; (4) catheterizing the bladder (urine was normal); (5) initiation of a glucose–saline drip, 5 per cent., with a vacoliter apparatus: the drip was regulated 18–20 drops a minute to avoid "wet" lungs. The treatment was kept up for six to eight hours, but the patient's condition deteriorated. Her pulse grew feebler and the breathing more laboured. The outlook was gloomy. Later that evening a lumbar puncture was done and 10 c.cm. of clear cerebrospinal fluid not under pressure was removed. An airway was inserted, and this helped the breathing considerably. Owing to lack of supply, cardiazol was substituted by anacardone, and 1 c.cm. of this was given two-hourly.

The next morning the coma was as deep as previously and a further lumbar puncture was done. On this occasion only 1 c.cm. of clear lumbar fluid came away. It may have been that this was due to low blood pressure and little was being secreted. Later that day she was again catheterized and 10 oz. of urine was withdrawn. This showed that the kidneys were still functioning to some extent. Her temperature rose to 102°, and the pulse, still thready, fluctuated between 110 and 120. Her blood pressure rose to 100 mm. after the injection of anacardone, but fell to 85 mm. within an hour.

Administration of Picrotoxin.—That night anacardone was discontinued and picrotoxin was given, after a further lumbar puncture in which 8 c.cm. of blood-stained fluid (traumatic) was withdrawn. Slowly every twenty minutes 1½ c.cm. of a 0.3 per cent. solution was administered intravenously. After four of these injections the coma seemed less, the conjunctival reflexes were restored slightly, and the patient winced when her ear was pinched hard. The picrotoxin was kept up intramuscularly during the night, and the next morning 2 c.cm. of the solution was again injected intravenously. The drip saline was going all the time. The patient was in a much lighter coma that morning. She grunted and moved when pricked or disturbed. Later in the day, after two more intramuscular injections of picrotoxin, she woke up. Her lungs were dry and, beyond some dimness of vision, which passed off gradually, and some pain in her back, she seemed on the road to recovery. She had some earache later and the tongue was sore. This cleared up rapidly, and recovery is now complete. Coma lasted between sixty and seventy hours.

Commentary

In treating this case intratracheal oxygen apparatus and an iron lung were in readiness in the event of respiratory failure. The steps that have seemed to me to be important are:

1. Immediate emptying of the stomach with a pump.
2. Instillation of hot coffee in the stomach.
3. Emptying the bowel with an adequate enema.
4. The administration of a glucose–saline drip. This may help excretion by the kidneys, which are often damaged, as the haemoglobinuria shows. This also keeps up the blood pressure.
5. Judicious lumbar puncture.
6. The continued administration of a cardiac stimulant such as coramine, cardiazol, or anacardone.
7. Picrotoxin seems very helpful: the antipathy between picrotoxin and the barbiturates has been shown by Rovenstine and others. It is a powerful respiratory stimulant, and must be given repeatedly and, best of all, intravenously. Up to 10 mg. can be administered with safety.
8. It is most important to keep the patient warm with hot-water bottles, care being taken not to burn the unconscious patient; to change posture to prevent congestion; and to insert an airway to prevent the tongue being swallowed. The mouth should also be frequently swabbed with glycothymol or some similar preparation.

The value of picrotoxin has been more widely recognized in America than in England. Several papers have appeared in American journals describing its merits. In the present case, though the convulsive stage was not reached with the dosage used, I have no doubt from the clinical results that picrotoxin was of the greatest value. Respiration improved rapidly after each injection, and the conjunctival reflexes also improved.

The prognosis, as judged by the depth of the coma, shallow respiration, low blood pressure, and very feeble pulse, seemed as grave as possible. The results in this case would show that hope must never be abandoned and that vigorous treatment must be pursued by all routes.

I am grateful to Dr. Greig of Hove, with whom I saw the patient and who initiated the treatment in the early stages, and to the medical department of Messrs. May and Baker for help in the pharmacology of soneryl and some of the references to the American literature of barbiturate poisoning.

BIBLIOGRAPHY

Dille, J. M. (1939). *J. Amer. med. Ass.*, **112**, 2366.
Maloney, A. H., Fitch, R. H., and Tatum, A. L. (1931). *J. Pharmacol.*, **41**, 465.
Report of Council on Pharmacy and Chemistry (1939). *J. Amer. med. Ass.*, **112**, 431.
Rovenstine, E. A. (1938). *Amer. J. med. Sci.*, **196**, 46.
Stephens, J. T., and Anderson, J. P. (1939). *J. Amer. med. Ass.*, **112**, 2367.
Symposium (1939). Ibid., **113**, 499.
Volpitto, P. P. (1939). *Curr. Res. Anesth. Analges.*, **18**, 205.

A CASE OF TUBERCULOSIS

BY

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The following case of tuberculosis, showing several manifestations of the disease in the same subject, may be considered of interest in that the clinical, laboratory, and post-mortem findings give an unusually clear picture of the sequence of events which culminated in the patient's death.

Clinical History

The patient, a stoker aged 34, first came to our notice on January 8, 1940, when we were approached by one of his messmates, who said that his friend's speech and behaviour were strange and that since joining the ship he had never seemed well, had always been too tired to go ashore, and had complained frequently of headaches. When examined in the sick-bay the man said he had been feeling ill for several weeks and that three days previously he had suddenly felt giddy, and since then had had difficulty in talking, writing, and remembering certain words. He had had frequent frontal headaches for many weeks but had never vomited. He had a slight cough with scanty sputum; this had been present for about a year, but had not worried him much. While giving this history he appeared dazed, spoke and moved slowly, but laughed readily. He was unable to pronounce certain words and completely forgot others, although he remembered them immediately and was able to continue when they were suggested to him. He fully appreciated his difficulty, and his answers, though slow in forthcoming, were quite rational. He named various objects without difficulty.

On examination the temperature was 101° and the pulse 90. The tongue was heavily furred and the breath foul, the throat being clear. The absence of superficial abdominal reflexes and rather brisk knee-jerks were the only abnormal physical signs in the central nervous system. Cranial nerves, motor and sensory spinal nerves, and all the remaining reflexes were normal. The plantar response was flexor. There was no loss of co-ordination, no static or intention tremors, no astereognosis, and no grasp reflex. The fundi appeared normal. There were signs of a pleural effusion on the left side reaching almost to the apex. The right lung appeared normal and no abnormalities were present in the abdomen.

Further points in the history were obtained partly from his medical history sheet and partly from his wife. His records showed that between September, 1938, and December, 1939, he had lost nearly 3 stone in weight, while previous to this he had been gaining. His wife stated that on returning from a spring cruise in 1939 he looked ill and appeared to be getting thin, and, although strongly disinclined at all other times to see a doctor, he remained sick on shore from April 10 to May 9 with a diagnosis of "bronchial catarrh." His cough almost disappeared during the summer, but he was still feeling far from well when he joined this ship in September. There was no history of respiratory disease previous to 1939 and he had never had venereal disease. There was no family history of tuberculosis.

He was admitted to hospital on January 9 with a provisional diagnosis of cerebral abscess in the left frontal region and pleural effusion. His condition deteriorated without remission until his death thirteen days later. During this period the temperature ranged irregularly between 99.6° and 102.2°, with a pulse of 72 to 108. On admission slight patellar clonus on the right side and faint pallor of the temporal halves of both disks were found in addition to the signs already noted. There was a moderate hypochromic anaemia and a leucocyte count of 10,300—polymorphs 82 per cent. Sputum became

more profuse, but repeated examinations for tubercle bacilli always proved negative. No fluid was obtained on exploratory puncture of the pleura, and unfortunately it proved impossible to obtain a radiograph of the chest. The cerebrospinal fluid, which was clear and not under pressure throughout, showed a trace only of glucose and 690 mg. chlorides per 100 c.cm. On January 12 there were 85 cells per c.mm., all polymorphs, whereas two days later there were 100 cells per c.mm.—49 polymorphs and 51 lymphocytes. The Wassermann reaction was negative in both blood and cerebrospinal fluid.

By January 16 the patient had become somnolent, lying on his side turned away from the light. He answered "Yes" to all questions, although apparently understanding them. There was stiffness of the neck and a positive Kernig sign, more marked on the right side. On January 18 crepitations appeared over both lungs, and during the final two days he became delirious with incontinence of urine and faeces.

Post-mortem Examination

At necropsy the following conditions were found. There was an excess of slightly turbid cerebrospinal fluid. No tubercles were seen on the meninges. A tumour, the size of a large marble and showing punctiform haemorrhages in its substance, was present in the left temporal lobe, and a similar tumour, half the size, was found just anterior to the third left frontal convolution in the region of Broca's area. The left pleural cavity was the seat of a chronic inflammation, with little fluid but large masses of fibrin. The upper halves of both lungs were studded with miliary tubercles, but there was no obvious chronic tuberculous focus in the substance of either lung. The other organs showed the usual changes resulting from chronic toxaemia, and no miliary tubercles were discovered. On section the cerebral tumours were shown to be tuberculomata, and tubercle bacilli were found on direct examination of the cerebrospinal fluid and basal meninges.

Commentary

During the patient's lifetime the diagnostic difficulties were not particularly great, the dysarthria, pleural effusion, pyrexia, and loss of weight being valuable pointers. The laboratory gave little assistance to the clinician except in the examination of the cerebrospinal fluid. On January 12 to 14 a swing from polymorphs to lymphocytes was seen in the cerebrospinal fluid cell count, and as this has been observed frequently in the initial stages of tuberculous meningitis we may deduce that the meninges were invaded shortly before this time. It would appear that the tuberculous activity started in the winter of 1938–9 in a focus adjacent to the left pleura. It is probable that the so-called "bronchial catarrh" in April, 1939, marked an increase of the activity in the pleura, which, under the influence of rest in bed and warmer weather, subsided sufficiently to allow the patient to perform his duties for the next six months. Knowing that his behaviour was normal on joining the ship and that there was no complaint of headache, we suggest that tuberculomata developed towards the end of 1939 and that with crumbling of the body's defences the disease extended more rapidly, meningitis starting about January 12 and the blood stream being flooded during the last few days of life. It is reasonable to expect that the lungs would be the first organs to be affected in miliary tuberculosis from a non-pulmonary focus. The findings in this case suggest that this is so, and that the pulmonary capillaries act at least temporarily as a filter for the organisms, the systemic circulation only being invaded when the lung is overwhelmed by the infection.

J. Paraf and H. Orestin (*Bull. Mém. Soc. méd. Hôp. Paris*, 1940, **56**, 93) record a typical case of bilateral mumps in a man aged 80, complicated by transient right hemiplegia and aphasia as the disease was subsiding.

Clinical Memoranda

Rubella at Sea

The following account of an outbreak of German measles on board one of H.M. ships at sea is recorded in view of the unusual circumstances determining its course. A certain amount of overcrowding on board was unavoidable owing to the ship having its wartime complement. Added to the difficulties of properly ventilating a darkened ship there was the impossibility of segregating known contacts, and the absence of such isolation accommodation as would be provided in hospital. Again, ship's routine had to be maintained at full pressure, despite the absence of many ratings on the sick list. The outbreak of rubella occurred simultaneously with a large number of severe colds, influenzal in type; these were of the short, acute variety, with initial pyrexia, and varying degrees of bronchitis and loss of voice, necessitating rest in bed for a few days.

The first case of German measles developed nine days after the first contact with the shore population, following several weeks at sea. This first case did not actually go ashore himself, and must therefore have contracted the disease by indirect infection. No previous cases had occurred on board. There were twelve further cases in the next month, mostly in young adults.

The clinical type of rubella was normal, with a well-marked eruption starting on the neck, upper chest, and face. The average duration of the rash was three days. Small red spots were constantly noticed, at the onset of each case, on both the hard and soft palate. General constitutional symptoms were absent, and there were no complications. Treatment consisted simply of rest in bed during the acute stage of the rash.

CONTROL OF INFECTION ON BOARD

Individual.—All cases with pyrexia were at once put to bed. For the purpose of isolating rubella part of the sick bay was screened off by a curtain. As the numbers of acute colds increased it became necessary to isolate patients with German measles in a separate mess, where they were slung in hammocks which were of necessity some twelve inches apart.

General.—(1) Daily inspection of all throats in messes concerned was first carried out. The small red spots on the palate, constantly seen, did not appear before the general eruption. As there were no premonitory signs of any value this daily inspection was discontinued. (2) Facilities for gargling with salt and water were provided and used throughout the ship. (3) After due consideration the ship's cinema was allowed to continue.

Cases were considered non-infectious from rubella, on the average, six days from the date of the first appearance of the rash. Faint staining which sometimes persisted at the end of the six days was not considered as evidence of infectivity. Desquamation was negligible in amount in all cases. Patients were discharged as fit for duty after a further two days' convalescence. Cases of acute colds were considered non-infectious and fit for duty within six days, except in a few with laryngitis and loss of voice. Subsequently there have been no relapses. The rubella outbreak has now almost subsided. The acute colds, however, are still prevalent.

GENERAL OBSERVATIONS

(1) In a ship whose complement consists of a large proportion of ratings below the age of 20 the incidence of rubella was much smaller than one would expect in

view of the close contact in messes and the congestion inevitable on a warship in time of war. Here it may be recalled that previous history of morbilli in childhood is no guarantee of protection against rubella.

(2) The incubation period of the first case, as defined above, cannot have exceeded nine days—a shorter period than that usually recognized.

(3) It would appear that the period of isolation usually enforced ashore for rubella, before regarding a case as non-infectious, may be safely shortened by several days, with a corresponding saving of working time.

(4) On the facts available there is insufficient evidence to show that the occurrence of these two virus diseases together was any more than a seasonal coincidence.

Thanks are due to the Principal Medical Officer for permission to record these notes.

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Two-stage Operation for Imperforate Anus

The following case may be of interest:

A male infant aged two days was admitted to hospital on November 29, 1939, suffering from obstruction due to an imperforate anus. On examination the infant was found to be well developed; the abdomen was very distended, and the perineum showed a small dimple where the anus should have been. There was no impulse on crying. An incision was made in the perineum and deepened, but I was unable to find the end of the gut; I therefore performed a colostomy.

The baby did very well, and at five months, when it had been weaned, I took it into hospital again for further treatment. On February 27, 1940, I passed a large bougie through the colostomy opening down to the blind end of the gut. A perineal incision was made and deepened until I could feel the tip of the bougie. With blunt dissection I freed the end of the bowel and continued until I was able to bring it down to the skin margin at the anal dimple. I fixed it here with a few catgut stitches, and then closed up the perineal incision. I now opened the bowel and fixed the mucous membrane of the bowel to the skin edge with interrupted catgut stitches. The wound healed by first intention, and on March 17 the colostomy was closed.

After this operation the baby developed some bronchitis, but was discharged from hospital on April 3. The wounds were then healed and the anal opening was working well. Another operation will be necessary in about two years' time to make a sphincter.

I am reporting this case because the passage of the bougie down to the blind end of the bowel made its identification and isolation a comparatively simple matter.

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In the *Journal of Nervous and Mental Disease* for June, 1939, T. T. Stone and E. I. Falstein report a general study of fifty-two cases of Huntington's chorea. Ten families are described in detail. The nationalities represented include German, English, Scotch, Irish, Slavonic, Scandinavian, Lithuanian, Italian, Jewish, and negro groups. The most reliable case histories revealed typical Mendelian dominance. Considering Huntington's chorea as a eugenic problem, the authors suggest that "prospects of its eradication appear to be remote without adequate legislative measures of the type exemplified by legalized sterilization."

Reviews

BLOOD GROUPS AND BLOOD TRANSFUSION

Blood Groups and Blood Transfusion. By Alexander S. Wiener, M.D. Second edition. (Pp. 306; 52 illustrations. $5 post paid; 27s. 6d.) Springfield and Baltimore: Charles C. Thomas; London: Baillière, Tindall and Cox.

This book by Alexander S. Wiener since it first appeared in 1935 has been a standard work of reference. The second edition is even more valuable than the first. The sections dealing with the practical problems of blood transfusion have not only been brought up to date but have been extended in scope, especially those discussing indications for and reactions from transfusion. British readers, concerned particularly to-day with transfusion problems, may feel perhaps that the discussion of preserved blood is limited in scope and regret that nothing is said of the alternative plasma or serum transfusions. This would appear, however, the only criticism that can be made of such an admirable book. In the present edition expanded accounts are given of the technique of grouping dried blood stains and the significance of the results for forensic medicine. Data concerning the racial distribution of the agglutinogens M and N are included in the chapter on anthropological applications, and the negative results obtained in attempts to achieve some correlation between blood groups and disease conditions are discussed. Constant reference is made throughout the book to the need for a well-controlled technique in the determination of the blood groups, more particularly when the M and N system is concerned. The book ends with a plea for the more widespread establishment of medico-legal institutes where serological experts can be trained, accurate serological tests carried out, and reliable data accumulated. The difficulty experienced in this country during recent months of finding donors of high enough titre to provide test A and B serum on a large scale, and the excellent service recently given in this respect by the serum unit at Cambridge, only serve to emphasize the importance of Wiener's conclusion. No medical or scientific library in the country, however overshadowed by the 1940 Budget, should fail to add this book to its shelves.

A BOOK OF HOSPITAL LAW

Law for Hospital Authorities. By J. E. Stone, *M.C.*, F.S.A.A., F.R.Econ.S. With a foreword by Lord Sankey, P.C., G.B.E., and an introduction by Lord Cozens-Hardy. (Pp. 488. 30s. net.) London: Faber and Faber. 1940.

There was undoubtedly a demand for a book on hospital law, and Captain Stone has produced this book in an endeavour to meet it. As is well known, he has long and large experience in the administration and financing of hospitals. His book *Hospital Organisation and Management* is a standard work of reference for hospital administrators throughout the country, and he has also written other works on hospital accounts and financial administration, and on appeals for funds and hospital publicity. This book, like its predecessors, has been prepared with the practical needs of the hospital administrator primarily in view, and there is no doubt that hospital authorities will find it of great use. It contains towards the end an admirable chapter headed "Law—What it is and How it is Made and Enforced." Here Captain Stone summarizes accepted definitions of law, the

distinction between law and fact, and the nature of various branches of law, such as constitutional law, common and statute law, and equity. He also shows the manner in which Parliament makes and the courts enforce law. This explanation will give the layman a sound basis for the understanding of more detailed principles. It is followed by a chapter on the general law of contract, which explains in the clearest way such concepts as offer, acceptance, and consideration, and the various grounds for avoiding a contract.

Apart from these general chapters, the detail which the author covers throughout the book is very varied, and he probably omits nothing of any practical importance. Beginning with the definition and classification of hospitals and allied institutions, he considers the constitution and organization of local authority hospitals and services, and then deals with a number of immediately practical topics, such as the rights, duties, and liabilities of hospital boards and members of committees; deaths, inquests, and post-mortems; income, accounts, and audit; endowments and investments; income tax, rates, and duties; insurances; the law and procedure of meetings; and incorporation. He devotes nearly fifty pages in the first part of the book to the liability of hospital authorities for the negligence of their staff, and reviews a great number of decided cases. In a miscellaneous chapter at the end he deals with such accessory subjects as the ownership of *x*-ray films, the Poisons and Dangerous Drugs Acts, nuisances, and national health insurance. In appendices he gives a specimen constitution and general laws for an unincorporated hospital, a constitution for a hospital incorporated under the Companies Act, a Royal Charter of incorporation, and a private Act of Parliament amalgamating two hospitals; also the forms prescribed by the Charity Commissioners, and a number of other useful pieces of information.

The author therefore covers the ground very fully, in a manner which will make his subject-matter easily comprehensible to the lay reader. It is a great pity, however, that he did not make more effort to link up his work with its sources. He hardly ever gives citations of cases in the law reports; similarly, he makes many statements of law without reference to the statutes which govern them. It will therefore be difficult for the lawyer to make that use of the book which he could have made if more attention had been given to references. Captain Stone falls into occasional inaccuracy—for instance, he has not heard of the abolition of the grand jury, and thinks that hospital records are inadmissible as evidence. On the whole, however, he can be trusted implicitly, and, subject to its limitations, this is a really useful guide to the legal side of hospital work.

ANAESTHESIA AND ANALGESIA

Recent Advances in Anaesthesia and Analgesia (including Oxygen Therapy). By C. Langton Hewer, M.B., B.S., D.A. Third edition. (Pp. 334; 132 illustrations. 15s. net.) London: J. and A. Churchill. 1939.

This handy volume still maintains its popularity, for the last edition was published less than three years ago. The institution of a diploma in anaesthetics and the rapid advances which have been made in anaesthesia during the past few years are no doubt responsible for this. The regular anaesthetist, whether he be wholly or partially engaged in the art, must keep up to date with his subject, and this book will enable him to do so. The general lay-out is similar to that of the previous edition, but the chapter on oxygen therapy has been revised and more has been added to the chapter on intravenous therapy. Although another forty pages have been added to the text the author has wisely resisted the temptation to let his pen run away with him, and the volume still remains a comfortable size to read.

As we mentioned in these columns on the publication of the second edition, this work is not intended for students. They should study the elementary principles of anaesthesia elsewhere. They will, however, be many practitioners who, although rusty in the subject, may have to play the part of anaesthetist owing to the demands of war. To these and to the aspirants for the diploma in anaesthetics this book can be confidently recommended as a source of up-to-date knowledge. It is liberally supplied with illustrations.

In his preface to this edition the author pays a well-deserved tribute to Lord Nuffield for his great service to medical science in providing a chair of anaesthesia at Oxford.

NEUROLOGY, PSYCHIATRY, AND ENDOCRINOLOGY

The 1939 Year Book of Neurology, Psychiatry and Endocrinology. Neurology: edited by Hans H. Reese, M.D. Psychiatry: edited by Nolan D. C. Lewis, M.D. Endocrinology: edited by Elmer L. Sevringhaus, M.D. (Pp. 780. $3 or 15s.) Chicago: The Year Book Publishers; London: H. K. Lewis and Co.

The *Year Book of Neurology, Psychiatry and Endocrinology* continues to pursue its useful career. Space will only allow of comment on a few outstanding articles in its 760 pages. It is interesting to note how widely vitamin therapy is being employed in neurology, and how the old vagotonia and sympathicotonia are being revived as cholinergic and adrenergic syndromes. Such chemical approaches are hopeful in a field where therapeutics have had little to offer. Mongolism is the subject of several new surveys. It is no longer attributed to any kind of atavistic regression, as Langdon-Down, who originally described the condition, thought. It is not hereditary, and the age of the mother is considered to be the most important factor in sufficiently disturbing foetal development. That it is apt to appear in the youngest of a family may well be merely due to voluntary decision of the parents to avoid further disasters of this kind. The histological changes in the brain suggest impairment of oxygenation, while the unenlarged pituitary shows a deficiency of basophil cells and the thyroid presents changes resembling those produced by administration of the thyrotrophic hormone of the pituitary. There is no defect in the eosinophil cells, yet epiphyseal junctions fuse prematurely. A disturbed pituitary balance and deficient oxygenation during foetal life therefore appear to be the chief features, which, taken in conjunction with the comparatively advanced age of the mother, suggests to us the need for a careful study of the placenta, which, as we know, normally produces large amounts of a pituitary-like hormone. Unfortunately the condition may not be sufficiently evident at birth to point to placental damage, and the opportunity is lost.

The section on psychiatry bears witness to the much more active therapeutic measures which are being undertaken for many mental states, doubtless stimulated by the success of shock therapy in schizophrenia. Thus nicotinic acid is being found helpful in atypical psychotic states associated with malnutrition, and glucose infusions are recommended for confusional states in the aged. G. W. Robinson points out that such states should not be dismissed as part of an inevitable arteriosclerotic process,

since there is no relation between the severity of the cerebral pathology and the intensity of the mental changes.

Controversy as to the essential nature of Cushing's syndrome continues. Marañon is of opinion that hyperplasia of the adrenals is primarily responsible. The cortical hormone is present in excess in the blood and urine of such patients; furthermore the blood sodium is high while the potassium is normal or low, the reverse condition to that in adrenal insufficiency. Salt deprivation is important in the treatment of Cushing's disease. Other symptoms—hirsutism, hypertension, and glycosuria—are of direct adrenal origin. Of these three features the first depends on the androgenic zone of the cortex, the others on medullary involvement. We might add, as another point of contrast, Crooke's observation that the number of basophil cells in the pituitary is reduced in Addison's disease, whereas Cushing regarded their increased number a primary feature of his syndrome.

We should like to repeat our mild protest against including all endocrine glands except the thymus under the heading "pituitary group." To make a classification so inclusive deprives it of any real meaning.

EUTHANASIA

Man Without Uniform. By Willy Corsari. Translated from the Dutch by S. L. Salzedo. (Pp. 360. 9s. 6d. net.) London: Hutchinson and Co.

This is a novel, translated from the Dutch, concerned with the problem of euthanasia as it presents itself to a medical man. "In truth, material for a story! An old problem indeed: may you kill out of compassion?" The doctor in his professional uniform, committed to save life, finds himself in conflict with his creed. The author describes the development of a sensitive boy into a doctor torn between the rival attractions of practice and research. He enters general practice and attains success, and in the course of his work he is faced with the rival dictates of his professional duty and his sympathy with human suffering. The action that he takes and the secret responsibility he must carry are reflected in his home life and his future career. Events conspire to raise a conflict of doubt in his mind on the morality of his actions. Finally he devotes himself to research in the field of cancer and dies of the disease at the very moment his work appears to be crowned with success.

The medical atmosphere in which the book is written is well handled and no attempt is made to influence the reader's opinion on the underlying problem. The emotional reactions are perhaps elevated to a level more suited to the public than the medical reader, and there is little local colour to help the imagination.

The translation is good, and the book will interest those who see the word "euthanasia" in the light of sympathetic emotion rather than from the practical aspect in which it faces the doctor.

Notes on Books

For the eleventh edition of *Clinical Methods* Sir ROBERT HUTCHISON and Dr. DONALD HUNTER have carried out an extensive revision with the assistance of four colleagues. There are many new illustrations and a new frontispiece (the fundus oculi), and with judicious pruning the book is actually a little smaller than formerly. This manual is now rapidly approaching its jubilee, and although over forty years have passed since it first appeared it still maintains a freshness and precision which makes it one of the essential books for students. The publishers are Cassell and Co., and the price 13s. 6d.

Poisons, their Isolation and Identification, by the late FRANK BAMFORD, B.Sc. (J. and A. Churchill, 18s.), is a laboratory manual which is particularly valuable on account of the author's very extensive practical experience. He was for many years director of the Chemical Laboratory at Cairo, and Professor Sydney Smith states in a foreword that the number of cases of poisoning in Egypt is large enough to keep a staff of chemists permanently employed on this work alone. Mr. Bamford's aim was to provide accurate practical details, based on first-hand knowledge, of all the important and trustworthy medico-legal tests for poisons. The volume describes the standard tests for inorganic and organic poisons, and the most important chapters are those on the isolation and identification of alkaloids. This is probably the most difficult of the toxicologist's analytical problems, and full technical details are given. Lastly, there is an interesting account of the modes of detection of drugs of addiction.

In a short monograph Dr. GUSTAV SINGER brings together his observations and views on *Functional Diseases of the Intestine* (Oxford Medical Publications, 8s. 6d.). After a brief survey of the normal physiological processes of motility and secretion both of stomach and intestine, he proceeds to discuss how these may be interfered with in the absence of organic disease by alteration of external conditions in the environment, the work and social state of the patient, and by changes in the autonomic nerves and of the vascular supply to these organs. In this way he builds up a picture of functional pathology, an intermediate state between health and organic disease. The book is thus an individual one which can be read with interest. The illustrations of *x*-rays and of cases are from the author's own experience or that of fellow workers, and the book will not be in vain if it leads practitioners away from the treatment of symptoms back to an assessment of the condition of the patient as a whole and the treatment of his diseased state in relation to his surroundings and work.

Like the previous edition of the systematic American textbook *Elmer and Rose's Physical Diagnosis,* the eighth edition has been revised by Dr. H. WALKER, associate professor of medicine at the Medical College of Virginia, Richmond. It contains many minor changes and some major ones, among which attention may be directed to chapters on electrocardiography and the arrhythmias, neuropsychiatric examination, and that on bronchoscopy, all by other hands. The forty-seven chapters cover a wide field and are admirably illustrated. The book is published by Henry Kimpton at 45s.

Preparations and Appliances

PIGMENTUM SULFARSENOL

Pigmentum sulfarsenol (Sulfarsenol Laboratories, Ltd.) is a stabilized glycerin solution of sulpharsphenamine which contains organic arsenis equivalent to 2.5 per cent. wt./vol. As_2O_3. It is intended for the treatment of stomatitis, gingivitis, Vincent's and simple angina. The special property claimed by the makers for the preparation is its activity against spirilla and fusospirilla.

FLAVOTAN

Flavotan (Boots Pure Drug Co.) is a tannic acid jelly that contains the two antiseptics acriflavine and amyl-meta-cresol. It is intended for the treatment of burns and scalds.

TRIVALENT ORGANIC ANTIMONY

Hypoloid stibophen (Burroughs Wellcome and Co.) is a preparation of the trivalent organic antimonial sodium-antimony *bis*-catechol-3:5-disulphonate. The chief use of this compound is in the treatment of schistosomiasis, and it is also effective in undulant fever and cutaneous leishmaniasis. It is satisfactory to know that a British source of this remedy is available, since it is of great importance in tropical medicine.

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IMMUNIZATION AGAINST TYPHUS AND OTHER RICKETTSIAL INFECTIONS

During the past few years much has been learnt of the world-wide distribution and importance of rickettsial infections, but although the means of spread of the majority are now well known, methods of prevention are far from perfect. Exanthematic typhus, for instance, is still endemic in large areas of Central and South-Eastern Europe as well as throughout North Africa, the Belgian Congo, and Asia Minor. The main factor in the continued existence of typhus in these areas is the failure of the population to become "louse conscious," a condition not necessarily associated with a particularly low standard of living; Mr. Pepys, it will be remembered, was merely amused at finding lice in a strange bed in which he slept. When, however, to the lack of louse consciousness is added a reduction in the standard of living such as occurs during wars and famines exanthematic typhus is apt to become epidemic rather than endemic, and, since infection can be transmitted by louse faeces in the absence of living lice, even those who do not themselves harbour lice may easily become infected. This fact explains the high incidence of the disease among doctors and nurses; during the Serbian epidemic at least a third of the medical practitioners in the country are said to have died of typhus.

In these circumstances numerous attempts have been made to find a satisfactory method of immunization, and a valuable survey of the problem was given by Dr. F. Murgatroyd and Dr. G. M. Findlay at the Royal Society of Tropical Medicine and Hygiene last week; an account of the meeting appears elsewhere in this issue. The methods employed are divisible into two groups: those which employ living rickettsiae, and those in which the rickettsiae are killed. So far all attempts to produce a biologically attenuated variant of the rickettsiae of exanthematic typhus have failed, and by whatever route the rickettsiae are introduced into the body the resulting disease is dangerous and often fatal. There exists, however, what would seem to be a naturally occurring variant of the rickettsia of exanthematic typhus—that of murine typhus, which is found in certain countries in the brains of rats. It is transmitted from rat to rat and from rat to man by means of rat fleas, the resulting disease being scarcely ever fatal and rarely associated with such dangerous sequels as thrombosis and gangrene. Only on occasions when, as in Shanghai, as reported by Raynal,[1] human beings are massed together in rat-infested houses does the disease assume epidemic proportions. In North Africa living murine typhus rickettsiae have been used on a large scale in immunizing the indigenous population. In Tunisia, Laigret and his colleagues[2 3] have mixed the rickettsiae with sodium phosphate and egg yolk, while in Morocco, Blanc and Baltazard[4] have used bile-treated rickettsiae. At first the fresh infected tissues of guinea-pigs were treated immediately before injection with sterile bile, but in these circumstances the vaccine was very unstable, and more recently the dried faeces of rat fleas mixed with bile have been used as a vaccine. In Morocco a million natives have been injected, while in Tunisia two million persons—approximately one-tenth of the native population—have been inoculated. Reactions in natives are said to be extremely rare. Unfortunately, despite the large numbers treated, no scientific data are available on the value of these procedures, since there have been no uninoculated controls and no evidence of the numbers who were already immune before inoculation or who subsequently developed typhus. Whatever the value of living murine typhus vaccines in immunizing natives against exanthematic typhus, everyone is agreed that they are too dangerous to employ for the immunization of Europeans, since the reactions are severe and often prolonged.

Although killed murine typhus rickettsiae do not appear to produce any lasting immunity against exanthematic typhus, there is evidence that killed exanthematic typhus rickettsiae give rise to a considerable degree of immunity against infection with the living rickettsiae. The first extensive experiments with killed exanthematic typhus rickettsiae in man were made by Weigl,[5] who used the formalized intestinal contents of lice injected with rickettsiae per rectum. Although a definite immunity was produced, more than 100 lice are necessary to immunize each person; the method is thus one which can hardly be used on an extensive scale. In order to obtain large supplies of rickettsiae without using lice certain new procedures have recently been developed. Zinsser, FitzPatrick, and Wei[6] found that rich cultures of the rickettsiae of exanthematic typhus may be obtained by incubating infected material with chick or mouse embryo tissue on agar slopes. The rickettsiae, after treatment with formalin, phenol, or merthiolate, act as an efficient vaccine which gives full protection to guinea-pigs against virulent doses of typhus rickettsiae. In China 164 persons have been successfully vaccinated by this method by Zia, Pang, and Liu,[7] a positive Weil-Felix reaction against proteus OX 19 developing in the majority of cases. Cox,[8] instead of using rickettsiae grown with embryonic tissues on agar slopes, has injected the rickettsiae directly into the yolk sac of the developing chick embryo. Rickettsiae are found in considerable numbers in the embryo, the chorio-allantoic membrane, and more especially in the yolk-sac membrane, which after treatment with phenol and formalin may be used as vaccines. So far, however, this method has only been used for the protection of guinea-pigs. A somewhat different technique

[1] *Bull. Soc. Path. exot.*, 1940, **33**, 168.
[2] *Arch. Inst. Pasteur Tunis*, 1937, **28**, 453.
[3] *Bull. Acad. Méd.*, Paris, 1939, **122**, 84.
[4] *Rev. d'Hyg.*, 1940, **61**, 593.
[5] *Arch. Inst. Pasteur Tunis*, 1933, **22**, 315.
[6] *J. exp. Med.*, 1939, **69**, 179.
[7] *Amer. J. publ. Hlth.*, 1940, **30**, 77.
[8] *Publ. Hlth. Rep.*, Wash., 1940, **55**, 110.

has recently been developed by French workers. Castaneda[9] and Durand and Sparrow[10] have independently shown that when typhus rickettsiae are injected into the nostrils of half-grown mice an intense pneumonia is produced. The rickettsiae can be passaged in series in mice, and after a few passages the pneumonia proves fatal, usually within forty-eight hours. The lungs of these mice provide intensely rich cultures of rickettsiae free from bacteria, since if the latter are present rickettsiae fail to grow. By differential centrifugation of pneumonic lungs Durand and Giroud[11] have found that the rickettsiae may be largely freed from mouse tissues, and, by treatment of the resulting suspensions of rickettsiae with formalin, a vaccine has been prepared which is highly efficient in vaccinating human beings against exanthematic typhus. The development of immunity is shown not only by the presence of a positive Weil-Felix reaction, but by the appearance in the serum of specific anti-rickettsial immune bodies; the latter can be demonstrated by the intradermal rabbit test devised by Giroud.[12]

It is as yet too early to adjudicate between these various methods of immunization; but reasonable hopes may be entertained that exanthematic typhus may now be controlled. Danielopolu and his colleagues,[13] who have lately reviewed the ravages caused by typhus in time of war, strongly urge that in view of the high death rate immunization should be undertaken of all those likely to be exposed to infection, not when epidemics have actually broken out but before they have begun. With this view there can be few dissentients. If, as is highly probable, trench fever again appears—and Schapiro[14] suggests that it has already been seen during the war in Spain—the question of immunization against this infection will also have to be considered.

TREATMENT OF HAEMORRHAGE IN THE NEWBORN

At the end of last year,[15] summarizing recent work on vitamin K, we pointed out that vitamin K concentrate and the chemical analogue, methyl-naphthoquinone, would successfully increase the prothrombin content of the blood of the newborn baby if given to the mother before delivery or to the infant after birth. On another page of this issue (p. 839) A. I. S. Macpherson, E. McCallum, and W. F. T. Haultain confirm this finding and take the matter an important stage further in their attempt to deal with the problem of intracranial haemorrhage in the newborn by means of raising the prothrombin content of the infant's blood. The subject bristles with difficulties, and the Edinburgh results in a small series of cases, though suggestive, need careful confirmation on a large scale. The so-called haemorrhagic disease of the newborn as a clinical entity is relatively rare, with a dramatic malaena or haematemesis as a presenting sign in most cases, and it usually yields readily to the intramuscular injection of adult blood. Intracranial haemorrhage is not generally considered to be a common variety of this condition, although in a recent monograph from Oslo[16] Salomonsen reported that in sixteen out of sixty-six infants with the haemorrhagic disease the bleeding was cerebral. Nevertheless, quite apart from those infants who have severe spontaneous haemorrhage and are classed in the "haemorrhagic disease" group, it is agreed that there is a drop in the prothrombin content of the blood in the first few days after birth in most if not all babies, and it is natural to regard this as playing a possible part in the occurrence of intracranial bleeding after trauma. But, as we have pointed out, vitamin K is of no value "as a non-specific haemostatic," and if a tentorial tear has led to a bleeding sinus it is extremely doubtful if a normal prothrombin level in the blood would stop the bleeding or save life. Workers at the Johns Hopkins Hospital[17] issued a similar warning last year in these words: "It is by no means definitely proved that the raising of the plasma prothrombin level will, in any way, decrease the number of neonatal deaths associated with cerebral haemorrhage." The paper by Macpherson and his colleagues, however, suggests an important differentiation between babies with symptoms occurring directly after birth and a group of cases with exacerbation of symptoms on the second or third day of life, when the prothrombin level is at its lowest. It is suggested that a "secondary oozing has occurred" through an abnormally soft clot, "possibly loosened from a birth injury by restlessness or a bout of crying." In such cases symptoms were rapidly relieved after the use of vitamin K analogue. Salomonsen in the paper already mentioned makes a similar point in classifying cerebral haemorrhage of the newborn into early and late groups, and states that about 20 per cent. of all cerebral haemorrhages in the newborn are late and due to a form of the haemorrhagic disease with hypocoagulability of the blood. It would seem clear that, apart from slight irritation of the alimentary tract when given by mouth or at the site of injection, vitamin K analogue can do no harm, and there is no danger in the raised prothrombin level obtained by its use. Given to the mother before delivery or to the infant soon after delivery this substance can be expected to control the haemorrhagic disease (which, it is fair to point out, can be equally well controlled by whole blood) and possibly to prevent a proportion of cases of intracranial haemorrhage. On this latter point more work, as the Edinburgh paper suggests, is necessary. Since, however, somewhere about 40 per cent. of neonatal deaths are due to intracranial haemorrhage it ought not to be difficult to conduct a therapeutic trial on a large enough scale.

Macpherson and his colleagues also suggest that vitamin K analogue is indicated in cases of icterus gravis neonatorum and anaemia. It is true that in icterus gravis, as in most cases of severe jaundice, the prothrombin level in the blood is low, and it is well

[9] *Amer. J. Path.*, 1939, **15**, 467.
[10] *Arch. Inst. Pasteur Tunis*, 1940, **29**, 1.
[11] *C. r. Acad. Sci.*, Paris, 1940, **210**, 493.
[12] *Bull. Soc. Path. exot.*, 1939, **32**, 251.
[13] *Bull. Off. int. Hyg. publ.*, 1940, **32**, 300.
[14] Thèse, No. 870, 1939, Faculté de Médecine, Paris.
[15] *British Medical Journal*, 1939, **2**, 1232.
[16] *Acta Paediatrica*, Stockholm, 1939, **27**, Suppl., 1.
[17] *Johns Hopk. Hosp. Bull.*, 1939, **65**, 419.

known that haemorrhages may occur. But there is no evidence so far that severe jaundice in the newborn can be prevented or treated by vitamin K, and this disorder must not be confused with the haemorrhagic disease, or the therapeutic issue will be clouded. Prompt injection of whole blood and, in severe cases, even intravenous transfusion of matched blood remain the treatment of choice for ictèrus gravis. When it appears in successive babies of a family it can possibly be prevented by liver therapy—a suggestion made nearly ten years ago by Bernheim-Karrer[18] in Zurich and not sufficiently appreciated in this country. Péhu[19] of Lyons confirmed this three years ago and recommends 100 grammes of calves' liver a day or its equivalent as a potent extract, especially during the last twelve weeks of pregnancy for any mother who has lost a previous infant or infants with serious jaundice. It might also be wise to give such a mother vitamin K analogue just before delivery and be prepared to give the baby an injection of blood if jaundice appears. These points are mentioned because there is a danger of over-enthusiasm for a new therapeutic agent. Intracranial haemorrhage in the newborn is most likely to yield to what McNeil[20] has recently called a "perfecting of the obstetric art," and vitamin-K therapy alone can only partially solve the problem—to what extent remains to be seen.

RENIN AND HYPERTENSION

In their original article on renin, the protein-like pressor substance of the kidney, Tigerstedt and Bergman[21] showed that repeated injections in the anaesthetized rabbit led to diminishing responses that finally became extinguished. This observation has been repeatedly confirmed and has cast doubt on whether renin capable of producing prolonged hypertension. Janet Hill and Pickering[22] have investigated this point, infusing renin solutions at constant rate into the ear veins of unanaesthetized rabbits and measuring the arterial pressure by means of a capsule on the opposite ear. They find that with strong solutions of renin the arterial pressure rises quickly during the infusion but is not maintained, falling towards its resting level despite continuance of the infusion. With slower rates the arterial pressure rises more slowly to a plateau at which it may be maintained for at least four hours by continuing the infusion, slowly regaining its previous level when the infusion is stopped. Hill and Pickering have not observed any differences between the hypertension caused by renin infusion and that brought about by clamping the renal arteries, and stress two points of resemblance—namely, the similar appearance of the ear vessels in the two conditions, and the identical times taken for the arterial pressure to regain its basal level after stopping the infusion on the one hand and after removing the ischaemic kidney on the other. It seems clear, then, that provided excessive doses are not used a prolonged hypertension closely resembling that due to constriction of the renal artery can be produced by continuous infusion of renin. What remains obscure is why the arterial pressure should fail to be maintained with the larger doses. The explanation has been supplied by the work of Page and his colleagues.[23] They have found that a perfused dog's tail or rabbit's ear does not respond by vasoconstriction when renin is added to the perfusing fluid, but does respond when renin plus a fraction of dog or ox plasma is added. They therefore conclude that renin itself is not vasoconstrictor but requires the presence of another substance normally present in plasma, which they term "renin activator." When an animal after many injections ceases to respond to renin, this is due chiefly to the disappearance from the blood of renin activator and partly to the accumulation of an inhibitor substance. The failure of a large dose of renin infused intravenously to maintain hypertension is also due to the disappearance of renin activator. Quite recently Helmer and Page[24] have shown that renin is an enzyme which reacts with renin activator to produce a pressor substance, "angiotonin." While renin itself is non-dialysable, is destroyed by heat, and is insoluble in alcohol, renin activator is dialysable, thermostable, and soluble in alcohol. The rise in arterial pressure due to an intravenous injection of renin lasts about thirty minutes, and to angiotonin about two minutes. Page concludes that renin induces hypertension indirectly, by reacting with renin activator to yield pressor substance angiotonin. He has obtained angiotonin in crystalline form as the oxalate and picrate, and it appears to be a relatively simple base whose chemical constitution should be quickly determined.

[18] *Z. Kinderheilk.*, 1931, **50**, 672.
[19] *Bull. Acad. Méd.*, Paris, 1937, **117**, 375.
[20] *Lancet*, 1940, **1**, 819.
[21] *Skand. Arch. Physiol.*, 1898, **8**, 223.
[22] *Clin. Sci.*, 1939, **4**, 207.

OCULAR MANIFESTATIONS OF VITAMIN B_2 DEFICIENCY

In a careful clinical study of nine adults who showed typical lesions of vitamin B_2 deficiency Kruse, Sydenstricker, Sebrell, and Cleckley[25] draw attention to two new features: one is glossitis, which they say can be recognized before the characteristic cheilosis and seborrhoeic dermatitis appear; the other is interstitial keratitis, which they regard as constant. All their patients showed ocular changes, with such symptoms as itching, burning, and even mild photophobia. In five patients gross corneal opacities were present, and in some there was conjunctival congestion with marked circumcorneal injection. Some diminution of vision was also present. Ophthalmoscopically there were no fundus lesions, but slit-lamp examination revealed superficial vascular infiltration of the cornea as the earliest change, followed by extensive interstitial exudates. That the lesion is indeed an interstitial keratitis was apparent in one patient in whom collapsed old vessels were seen in the cornea one year after clinical cure. The causal relation between these corneal lesions and vitamin B_2 deficiency is argued on a series of observations, mainly controls; the most important evidence is the rapid improvement of these lesions under vitamin B_2 therapy and the relapse on re-creating the previous state of deficiency. The authors also record two cases of syphilitic interstitial keratitis greatly improved by appropriate vitamin B_2 therapy, and they argue that vitamin B_2 deficiency, if not the actual cause of interstitial keratitis, is its precipitating cause. The implications of this suggestion are so far-reaching that further evidence is needed before any conclusion is reached. It is difficult to relate the frank inflammatory changes of interstitial keratitis to what would appear to be merely vascularization in vitamin B_2 deficiency. There is, however, good reason to believe that in interstitial keratitis another factor besides congenital syphilis is at work.

[23] *Proc. Soc. exp. Biol.*, N.Y., 1938, **39**, 214; *J. exp. Med.*, 1939, **70**, 521.
[24] *J. exp. Med.*, 1940, **71**, 29.
[25] *Publ. Hlth. Rep.*, Wash., 1940, **55**, 157.

DIABETES TREATED WITH OESTROGENS

An attempt to treat human diabetes in females with oestrogenic substances is a logical outcome of experimental work on the relation of the pituitary to carbohydrate metabolism. It has been clearly established by Young that a crude saline extract of the anterior pituitary can produce permanent diabetes in dogs and some other animals, a type of diabetes very like that which develops in obese middle-aged individuals, and particularly common in women soon after the menopause. It has also been established that the decrease of oestrogenic substance at the menopause is accompanied by an increased pituitary activity, and especially secretion of gonadotrophic hormone—an increase which can be checked by injections of oestrogens. It was therefore tempting to conclude that many cases of human diabetes in women with onset at the menopause might be due to unopposed activity of the pituitary and might be benefited by treatment with oestrogens. The effect of such treatment has been studied both experimentally and clinically by several observers, and the literature has been reviewed and their own experience described in a recent article by Gessler and his colleagues from Boston.[1] The results of previous work have been very contradictory, as might be expected from the enormous variation in dosage of oestrogens used by different observers—from ten to thousands of international units. Gessler investigated five diabetic women under thoroughly controlled conditions, and claims definite improvement in three when doses of 50,000 international units of oestradiol benzoate were injected daily. Smaller doses of 20,000 units had no effect, but the blood sugar was lowered with high doses and rose again when the injections were stopped. The three successful cases were women in whom the onset of diabetes coincided with the menopause, and the two failures occurred in women without this simultaneous onset. In four of the patients the authors assayed the excretion of pituitary follicle-stimulating hormone in the urine, and found it reduced by the injections of oestradiol. The number of cases treated and of successful results is small but interesting. No permanent improvement from the injections was observed, so that this treatment is not likely to be of much value in "menopausal diabetes." But now that the new synthetic oestrogen stilboestrol is available and is potent by mouth it is to be hoped that it will be thoroughly tried in a large series of cases. It would be an enormous boon if such a simple oral method were proved effective in the treatment of the menopausal type of diabetes.

PHOTOGRAPHING THE LARYNX

Photography of the larynx as a valuable aid to diagnosis has for a long time attracted physicians and laryngologists. Successful photographs were shown to the British Medical Association by Lennox Browne as long ago as 1883,[2] but the first worker to obtain motion pictures of the larynx appears to have been C. A. Heatley.[3] Dr. William Lell[4] considers that if mirror laryngoscopy were properly standardized into an accurate routine procedure its advantages over other methods would stimulate interest in laryngeal photography. It gives the operator complete control and a wide range of illumination; the patient need not be subjected to direct laryngoscopic examination or the use of a suspension apparatus; and the only anaesthetic which is needed is a 4 per cent. cocaine solution sprayed into the pharynx. The patient can relax the laryngeal structures, which therefore appear more normal than under direct examination. The mirror gives a wider field of observation, so that the operator can see not only the unrestrained movements of the cords but also the epiglottis, the aryepiglottic folds, and the surrounding structures of the pharynx. The pictures can be taken in a few minutes, and the photographer can accurately focus and visualize the mirror image at all times. At present, however, according to Dr. Lell, the method has two distinct disadvantages; it cannot be used when the patient has an overhanging epiglottis or when the mouth will only admit a small mirror. He and his colleagues claim that their present procedure will allow any person with average skill in photography to take motion pictures of the larynx in natural colour. The laryngeal mirror must be placed in the pharynx above and behind the larynx at such an angle that light is reflected downwards into the latter. They use a 16-mm. Kodak cinematograph with a large-aperture lens. The source of light is either a floodlight bulb with a bull's-eye reflector, or a 16-mm. projector with a 500- or 750-watt lamp. Special 1¼-inch or 6-7 standard laryngeal mirrors and a head mirror reflector are used. The camera is set ten or twelve inches away from the mouth; the source of light is placed to the right of the patient so that it shines on the head mirror of the operator, and the light is concentrated on the laryngeal mirror. The angle of the camera is adjusted to be in the direct line of the reflected rays. For colour work an aperture of *f*.8 has been found most satisfactory, but it is as well to use a photometer. The camera works at the standard speed of sixteen frames a second. Dr. Lell and his colleagues have photographed over a hundred larynges with good results.

[1] *J. clin. Invest.*, 1939, **18**, 715.
[2] *British Medical Journal*, 1883, **2**, 311.
[3] *Ann. Otol.*, St. Louis, 1931, **40**, 434.
[4] *Arch. Otolaryng.*, Chicago, 1939, **30**, 344.

THE PHYSIQUE OF LONDON CHILDREN

Up to a few months ago the standard figures of height and weight for children of school age in London elementary schools were based upon records made in the years 1905 to 1912. One of the last documents to which Sir Frederick Menzies put his signature as school medical officer is a report on more up-to-date standards dealing with an important survey made in 1938.[1] As a part of the measures taken for the supervision of the nutritional condition of elementary school children the London County Council arranged in 1935 for the measurement of all school children twice a year at intervals of approximately six months. It is from such records compiled for 1938 that a special analysis has been made. There were nearly half a million children attending the Council's elementary schools on March 31 that year, but to make the analysis manageable it was decided to limit the numbers to about 100,000 by the simple process of taking a "spring group" measured in March, April, and May, and an "autumn group" measured in September, October, and November. Measurements relating to 51,500 boys and 49,800 girls were obtained and tabulated, and the resulting figures form the basis of this report. The children were measured in their ordinary indoor clothing but without footwear; heights were recorded in centimetres and weights in kilogrammes to the nearest decimal. The year of birth was recorded, and by an ingenious mathematical device it has been possible to give the average height and weight for boys and girls in "quarter-year" groups from 5 years to 14 years. This

[1] Report by the School Medical Officer on the average heights and weights of elementary school children in the county of London in 1938. L.C.C. Publication No. 3464. (Price 9d.)

gives a table of first-rate importance, as modern anthropometric studies of children on a large scale are strikingly deficient, and it is palpably absurd to use standards of thirty years ago or compiled for other nations even of similar stock. The dangers of using old figures is well shown by the fact that since the last survey (approximately thirty years ago) there has been an average increase of 2.2 inches in the height and 7.5 lb. in the weight of boys in London's elementary schools, the figures for girls being 2.1 inches and 8.1 lb. respectively. The height of a child of 5½ years is to-day much the same as that of a child of 6½ years in the last generation. There are also contemporary differences in London for the representative height and weight measurements of children of school ages in metropolitan boroughs, which show somewhat higher average figures for children in better-off boroughs than for those in poorer areas. Moreover, central school children are on the average taller and heavier than the children in other elementary schools. It would have been more instructive if the new London figures could have been contrasted with those for other parts of England obtained at the same time, but in the absence of strictly comparable figures an attempt has been made, on the basis of data obtained in 1927, to see whether proportionate increases were being recorded in England elsewhere. It seems likely, allowing for obvious difficulties, that the improvement in the physique of London children has been greater than that experienced on the average by elementary school children in other parts of England.

FAMILY ALLOWANCES

"In England to-day there are children going so short of proper food that their health and growth are being damaged; and that is a medical problem which concerns the *Lancet*." With these words our contemporary launches "An Aylesbury Broadside," which takes the form of an attractive booklet on the subject of *Family Allowances*.[1] The evidence is skilfully marshalled. First, recent surveys on wages are linked up with budgets in which the amounts available for food are contrasted with the costs of a minimal diet which shall maintain health. It is then shown that whereas it is possible (but only just) to make ends meet when there are three children in the family things begin to get difficult if this number is exceeded. In fact, in larger families malnutrition of the children, of the mother, or of both, is almost inevitable, and in a graphic account the pamphlet paints the picture of "the ill-nourished child in person." This ill-health of mothers and children must be regarded as a public-health problem, although its solution lies in the economic sphere. Not content with stating the position and pointing out the necessity for more income when there are more children, the pamphlet shows how this has been achieved in other countries and how it might be achieved in Britain. In France, Belgium, Italy, Australia, New Zealand, and Germany some schemes of family allowances are successfully operated. Under the Nazis all farm workers below a certain annual wage are allowed an extra amount per month for each child after the fourth. Even before the Nazi regime there were more limited professional and industrial schemes, including one whereby panel doctors paid a levy of 2 per cent. and thereby became entitled to an extra allowance for third and subsequent children until they reach the age of twenty-one. In England also there are a very few limited schemes (if the income tax rebates and unemployment benefit be excluded), such as one at the London School of Economics for its staff, and others in commercial firms. The *Lancet* favours allowances at a flat rate for all children, possibly excepting the first child, and paid by the State direct to the mother, either financed by direct taxation or on the Keynes plan. It holds, with Mr. Maynard Keynes, that the need for the reform is much greater in wartime than ever before and that now is the appropriate moment to prevent that malnutrition which is one of the greatest evils brought to the child by war.

[1] Issued from the temporary editorial office of the *Lancet*, 26, Temple Street, Aylesbury, Bucks. Price 3d.

SECOND ADDENDUM TO THE B.P.

The General Medical Council will publish shortly a Second Addendum to the *British Pharmacopoeia*, 1932, in which certain new monographs, and certain modifications of existing monographs, will be included. On previous occasions when a new Pharmacopoeia, or an Addendum to a Pharmacopoeia, has been ready for publication it has been customary to give facilities for advance copies to be inspected, during the three months immediately preceding publication, by medical practitioners, pharmacists, analysts, manufacturers, and others who may be interested. The Second Addendum to the *British Pharmacopoeia*, 1932, has been prepared to deal with conditions arising from the present emergency, and it is expedient that it should be published, and thus made official, without delay. It is not possible, therefore, to provide for the customary preliminary inspection of the completed Addendum, but arrangements have been made for a limited number of advance proofs to be available for supply, on application, to manufacturers of the new preparations described in this Addendum. The following new monographs will be included, together with relevant appendices:

Emulsio Olei Morrhuae.
Emulsio Olei Vitaminati.
Extractum Malti cum Oleo Vitaminato.
Liquor Vitamini A Concentratus.
Liquor Vitamini D Concentratus.
Liquor Vitaminorum A et D Concentratus.
Oleum Amygdalae Volatile Purificatum.
Oleum Hippoglossi (halibut-liver oil).
Oleum Vitaminatum.
Toxinum Tetanicum Detoxicatum (tetanus toxoid).

Manufacturers interested in the production of the articles named in the foregoing list are invited to apply to the Secretary, the British Pharmacopoeia Commission, 44, Hallam Street, W.1, for advance copies of the monographs. The Addendum will also contain emendations to monographs of the *British Pharmacopoeia*, 1932, authorizing the use of arachis oil, cottonseed oil, or sesame oil, in place of olive oil, in making liniment of camphor, hydrous ointment, and compound ointment of mercury; and the use of simple ointment in place of the prescribed fatty basis in making ointment of tannic acid and ointment of capsicum. As these alterations are permissive, not compulsory, the usual preliminary inspection of the formulae is not deemed necessary. It must be understood that no additional monograph, or emendation of a monograph, is official until the Second Addendum has been published by the G.M.C.

We announce with deep regret the death on May 15 of Professor W. Harvey Smith, who was President of the British Medical Association when it held its ninety-eighth Annual Meeting in Winnipeg in August, 1930, in conjunction with the fifty-first Annual Meeting of the Canadian Medical Association. The great success of that meeting was, by general agreement, due in large part to the personality of Professor Harvey Smith. We hope to publish a memoir from Canada in due course.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

MINOR SURGERY OF THE NEWBORN

BY

DENIS BROWNE, F.R.C.S.

It may seem very trite advice that a baby should be examined from top to toe as soon as convenient after it is born; but any out-patient day at a children's hospital will show that this is very often neglected. It can be seen there what a surprising number of congenital defects have been overlooked for months and even years, in many of them the delay in discovery meaning a vast increase in the difficulty of treatment. Again, there is a curious tendency among medical men to put off treatment in the newly born for no definite reason. As a matter of fact the very young infant in many ways is a better subject for treatment than it is later on. It has little sensitivity to pain, its tissues are malleable to a degree which can only be appreciated on experience, and there is in them a tendency to grow towards the normal that rapidly diminishes even during the first year.

It is impossible in a paper of this length to cover the ground suggested by the title, even if there were any definite division between the major and the minor conditions. But possibly the following sketch of what is to me one of the most interesting and most neglected corners of surgery may be of some use. Most of the conditions calling for surgery in the newborn are, of course, congenital deformities, and they are here arranged according to the processes that have gone wrong in the complicated and irrational formation of the human body.

Extra Formations

Extra toes, fingers, and accessory auricles all need removal—from the mother's point of view as soon as possible. In many cases they are connected with the body merely by a small pedicle, which can be divided by the actual cautery with no bleeding and with almost imperceptible pain. In more severe deformities—for instance, when an extra digit has a corresponding metacarpal—it is better to wait till the child is stronger and the parts are larger before attacking it. If an operation is put off for such reasons it is usually worth while waiting till weaning is complete and the danger of enteritis consequently much less, especially if admission to hospital is necessary.

Abnormalities that may be put in this category, though it has much in common with new growths, are the haemangiomata or naevi. These are of many different kinds and correspondingly have different prognoses.

A faint reddish marking is often to be seen on the forehead and occiput of the newborn. This disappears spontaneously.

Spider Naevus.—This usually appears later in life, and is a tiny bright-red speck with radiating vessels. It often disappears spontaneously, never grows larger, and if objectionable can be easily destroyed by a light touch of the cautery or a fine point of carbon dioxide snow.

Port-wine Stain.—This is a perfectly homogeneous velvety-looking overgrowth of the capillaries of the whole thickness of the skin. It never changes in area throughout life, though its vessels enlarge slowly until finally it has a typical warty appearance in later life. Treatment is most disappointing; I know of none really satisfactory.

Cutaneous and Subcutaneous Angiomata.—This group varies from the superficial easily treated "strawberry mark" to those rapidly increasing growths of the face which provide some of the worst and least necessary tragedies of childhood. Because many growths of the type disappear spontaneously an unfortunate notion is at large among doctors that they all do. Nothing could be more dangerous than this assumption. A continually recurring tale in the out-patient department is that of the mother who notices a small red spot on her baby's face at or soon after birth. She asks her doctor for advice and is told that it is a birthmark and of no importance. A month or so later, with the mark rapidly enlarging, she asks again, and it is treated with carbon dioxide snow. This freezes the superficial layers of the skin but is quite without influence on the rapid growth in the subcutaneous tissues that is proceeding. When the growth is many times its original size she may, if lucky, meet someone who knows that the treatment for such a growth—once the early stage in which it could have been destroyed by a single cautery touch has passed—is the skilled application of radium. It cannot be too strongly stated that a naevus of a baby's face that shows the slightest tendency to enlarge is a surgical emergency.

Failures of Fusion and Migration

Cleft palate should be discovered by the doctor, if one is in charge of the birth, though the announcement is often left to a triumphant aunt. Umbilical hernia can in most cases be cured by simple strapping if this is persistently carried out. The efficiency of treatment decreases with its complication. Pennies embedded in the plaster are comparatively harmless; conical pads attached to it must tend to enlarge the hole rather than to close it; and the extreme of uselessness is reached in the popular and expensive rubber belt with pneumatic pad.

The most common and important of the failures of migration is the "undescended testicle." Now that it is becoming realized that those testicles which can be felt above the pubis are never in the inguinal canal the prognosis is becoming much clearer; and it is possible, in about 80 per cent. of cases in which the testes are not in the scrotum, to assure the parents that there is no need to worry.

Failures of Atrophy

Congenital Adhesion of the Labia Minora.—An interesting example of this is the case in which in place of the vulva there is merely a small opening through which urine passes, usually spurting forwards in the male direction in a characteristic way. I have known many serious prognoses to be given in these cases and various techniques for constructing artificial vaginae to be gravely discussed. All that is necessary is, with a probe passed through the forward opening, to tear the filmy strip of epithelium that unites the two sides.

Umbilical polyps are treated by cauterization.

Syndactyly should be left till the fingers are large enough for the easy application of the necessary full-thickness graft. The various operations copied from one

textbook to another which purport to supply the missing skin by various shiftings of the coverings of the joined fingers are worse than useless; they often cripple badly what was a very useful hand, owing to scar contraction that pulls the fingers sideways.

Moulding Deformities

Talipes is hardly a minor condition, but the difficulty of treating it is vastly increased by the advice so commonly given to put off treatment for several months. There is, however, one variety that can usually be cured permanently in the first month—that of metatarsal varus. The foot is bandaged by sticking-plaster on a light aluminium foot-piece (I use one off my stock hobble-splint) forced into metatarsal valgus over a fulcrum formed by a piece of chiropodist's adhesive felt. There is no muscular pull tending to reproduce the deformity, so that, once corrected, it does not relapse.

Crooked toes and fingers, which are so difficult to treat in later life, respond amazingly well to correction in the first few days of life in the very rare cases in which this is applied. One occasionally meets a variety of "talipes of the hands" which consists in fixed flexion of the fingers. If allowed to persist this is a most intractable and crippling deformity, but it yields easily to a few weeks' hyperextension on a splint if this is done very early.

Postural torticollis due to intra-uterine malposition is self-correcting, though for the first few months it may be very pronounced. It is interesting to observe how it invariably corresponds to a moulding of the head which has the exposed side flattened by the pressure of the uterine wall. More severe cases may be extremely difficult to treat, and I have known several complicated by facial paralysis due to the jamming of the facial nerve against the point of the shoulder on the affected side.

Scoliosis in its minor degrees responds very well to a few months on a plaster bed in the converse position to that in which the baby has been lying *in utero*; but here once again the ease of correction depends almost entirely on the earliness of treatment.

Lop-ears can be treated by fastening back with sticking-plaster, though in the severer cases this is not enough.

Disproportions

Under this heading I would place a miscellaneous group.

Phimosis is by no means as common as non-ritual circumcision, but it does occur fairly often. In circumcision I recommend leaving the frenal region untouched; it is the area of maximum sensitivity, it is one where scar contraction is a serious disability, and it is the commonest site of bleeding. (As in tonsillectomy, serious bleeding after operation is due to veins and is almost invariably blamed upon arteries.) Another important point is that if the orifice of the prepuce is small enough to require a circumcision the meatus is almost invariably unduly small as well, and needs enlarging. Failure to do this usually means trouble from meatal ulceration afterwards. Stretching the prepuce is very painful, and, I think, quite useless in cases in which any intervention at all is necessary.

Tongue-tie is a very rare deformity in a degree requiring operation. I think it is necessary to free the tongue if its tip cannot be brought out past the gum of the lower jaw; I have seen a most pronounced immediate improvement in speech from doing this in later years. But simple cutting is not enough: the frenum tends to heal up exactly as it was. It should be cut transversely and then stitched up longitudinally in the sagittal plane—an operation that needs a general anaesthetic and proper equipment.

Congenital enlargement of the adenoids to such a degree that they interfere with sucking is not very uncommon. Their removal in suitable cases has a marked and immediate benefit in the newborn, as later in life. It is, however, impossible to buy a stock curette small enough for this if one desires to leave the Eustachian cushions untouched. However, examination of the adenoid tissues removed in the usual tonsil-and-adenoid operation for pieces of cartilage will show that this point is not as a rule considered of importance.

Tight anus should be suspected if a baby appears to have pain and difficulty in passing a stool. The insertion of the male adult finger is enough to correct it.

Birth Injuries

These are usually obvious. The fractures correct themselves in the most amazing manner. Indeed, the only really bad result I have seen from a birth fracture of the femur came from a case in which I gave the anaesthetic while an enthusiastic admirer of Sir William Arbuthnot Lane plated the break.

In some very large haematomata of the scalp I think that aspiration followed by firm bandaging is good treatment, but of course most of them merely need to be left alone.

Nova et Vetera

THE LIFE AND DEATH OF SIR JOSHUA REYNOLDS

As the result of extensive literary research Dr. Ernest E. Irons (*Bull. Soc. med. Hist. Chicago*, 1939, **5**, 119) comes to the conclusion that the last illness of Sir Joshua Reynolds was caused by a malignant tumour of the liver secondary to a growth in the left eye. The medical history of the great painter was as follows. Apart from an attack of small-pox at the age of 12, and a brief but severe illness of unknown nature at 41, he remained in good health until 59, when he had a slight "paralytick" attack from which he recovered completely. At 67 he lost the sight of his left eye; the right eye was not affected. His general health, however, remained good until the age of 68, six months before his death, when the affected eye became painful, the liver became much enlarged, and loss of weight occurred. His death took place on February 23, 1792. The necropsy was carried out next day by Sir George Baker, John Hunter, and E. Home, whose report was as follows: "On examining the body we found no marks of disease in the cavity of the breast except only a slight adhesion of the lungs to the surrounding membrane on the left side. In the cavity of the belly the only diseased part was the liver, which was of a magnitude very uncommon and at least double of what is natural: it weighed eleven pounds, and was of a consistence which is usually called scirrhous. It had lost its natural colour and become of a pale yellow. We found the optic nerve of the right [*sic*] side shrunk and softer than natural. There was more water in the ventricles of the brain than which is generally found at so advanced an age."

Dr. Burton Chance, the ophthalmologist of Philadelphia, whose History of Ophthalmology in the Clio Medica series recently appeared, has contributed to the *Annals of Medical History*[1] an article on "Sir Joshua Reynolds and his Blindness and Death."

[1] Chance, B. (1939). *Ann. med. Hist.*, 3 s., **1**, 487.

Born as the seventh child in a family of eleven, the future first President of the Royal Academy was far from being a prodigy, for he was the least promising of the children of the Rev. S. Reynolds, master of the Grammar School of Plympton-Earl's, Devonshire. He was educated by his father with a view to becoming an apothecary or, in modern phraseology, a general practitioner. He told his father that he would rather be an apothecary than an ordinary painter, but if he could be bound to an eminent master he should choose the latter. The matter was settled by his apprenticeship to Thomas Hudson, a popular portrait painter in London. In later life he told a friend that "if the profession of an apothecary had been selected for him he should have felt the same determination to become the eminent physician as he then felt himself to be the first painter of his age." After his successful career in London, happy in his social and club life, he was suddenly struck down by obscured vision while painting a portrait, and in ten weeks' time his left eye was blind, and later the orbit fungated. It was described as *gutta serena*, a term derived from the Arabians for amaurosis without any visible alteration in the transparency of the anterior segment of the eyeball. In those days the eyes were mainly left to the tender mercies of the "oculists," irregular practitioners. Reynolds was under the best physicians of the time, and one of them, William Heberden (probably the younger, for his father was then 80), pointed out the enlargement of the liver, which at the necropsy weighed eleven pounds; otherwise the examination was not very complete; but Dr. Burton Chance with high probability considers that there was a primary melanoma in the left eye with hepatic metastases.

CUSHING'S SEVENTIETH BIRTHDAY PARTY

The eighth annual meeting of the Harvey Cushing Society on April 6, 7, and 8 of last year at the Yale University School of Medicine spent the day-time in scientific meetings and, though the whole time must have had one significance, specially celebrated Harvey Cushing's seventieth birthday on the third day. The pleasantly running record of his speeches, letters, tributes, and presentations in his honour has now been published by the society,[1] and shows the wonderful organization carried out by the president, Dr. Louise Eisenhardt of the Brain Tumour Registry and collaborator with Professor Cushing in the recent monograph *The Meningiomas* (1938), and by Professor John Fulton. During and after a dinner attended by members and their guests, to which crowded friends, colleagues, and pupils, some from Europe, such as Drs. A. G. Klebs of Nyon, Sjöquist of Stockholm, and Mr. Arnold Muirhead of London (representing the Osler Club), there were many speeches, light in touch and rich in affection, and many cables and letters from those absent in body were read; a new portrait of Cushing by Mr. Deane Keller, a copy of which forms the frontispiece of this volume, was on view for the first time; and the bibliography of his writings was presented to Cushing. Among the very numerous letters and cables there should be mentioned one from the President of the United States, from Cushing's teacher Sir Charles Sherrington, and from his own pupils from all parts and, particularly in this country, Mr. Geoffrey Jefferson of Manchester, Professor Hugh Cairns of Oxford, and Mr. Norman Dott of Edinburgh. After the dinner and speeches a specially attractive communication was made informally by Dr. H. R. Viets—"Notes on the Formative Period of a Neurological Surgeon"—about the hero of the celebration. As Cushing said in a letter, there were many Oslerites there, chief among them W. W. Francis as representative of the Osler Library at McGill and of Canada. This record of April 8, 1939, cannot but now strike a note of regret that, like Osler, whom he closely resembled in other ways, Harvey Cushing too should have been called away five months after the celebration of his seventieth birthday.

[1] *Harvey Cushing's Seventieth Birthday Party, April 8, 1939. Speeches, Letters and Tributes.* (Pp. 146. $3.) Published for the Harvey Cushing Society by C. C. Thomas, Springfield, Illinois, U.S.A. London: Baillière, Tindall and Cox.

OPHTHALMIC WORK IN PALESTINE

[FROM A CORRESPONDENT]

The report of the Ophthalmic Hospital of St. John of Jerusalem for 1938 reflected, as was indeed inevitable, the disturbed condition of Palestine; the report of the committee for 1939 shows in an equally striking way the improved conditions in the country. If one looks at what is perhaps the outstanding item in the report—namely, the total attendances—the figure for 1938 was 79,018, while that for 1939 is 97,403. The contrast is still more striking if one compares the attendances since war began, "which has had the effect of bringing the factions of Jew and Arab together and uniting them against a common danger."

The importance of ophthalmic work in a country where eye diseases are so rife can hardly be appreciated in this country, for the warden states that of the new patients seen 90.33 per cent. had trachoma, and during the year 251 cataracts were operated upon. Some idea of the conditions under which the work is carried out may be gathered from a letter from the warden, who says: "The few fellahin who come (and particularly the children) are literally starving when admitted to hospital, and one dare not operate on many until they are better nourished." For such the committee authorized the warden always to expend the necessary money to find food for these destitute patients. For many years the work of the hospital has been restricted for want of better accommodation for patients and improved facilities for the treatment which modern advances demand. In spite of the unsettled times the Chapter-General of the Order has sanctioned the addition of a new wing which will supply these facilities, and in addition provision is made for physiotherapeutical treatment and room for patients who can properly be asked to pay for treatment. The plans for part of this wing have been approved at an approximate cost of £15,000, and building is proceeding. It is felt that the undertaking at such a time will be valuable as an open act of faith, and the work provided will be beneficial as fulfilling an urgent local need. The High Commissioner cabled: "Am most gratified to hear that Order has authorized important extension to hospital buildings in Jerusalem. . . . No more beneficent work could be undertaken than extension of Order's activities."

In its warden, Sir John Strathearn, the hospital has a man not only of outstanding professional ability whose reputation as such is widely appreciated throughout Palestine, but one whose influence permeates widely beyond the confines of his professional work. The Earl of Stradbroke, after a recent visit, says: "I must say that I consider too much praise cannot be given to Sir John Strathearn, and the reputation of his work and the benefit patients throughout that part of the world receive at the hospital cannot be over-estimated." The warden's altruism and enthusiasm have infected his co-workers, and special praise is due to the sub-warden, Dr. Wren, and to all the members of the medical and nursing staff, whether British or Palestinian.

The activities of the hospital are controlled in this country by Colonel Woolrych Perowne, the hospitaller, without whose unfailing interest and unflagging energies the work could not continue; further, the Hospital Committee has as its honorary secretary Mr. Humphrey Bowman, whose intimate knowledge of Palestine is an asset of the highest value.

M. Fox and M. Hardgrove (*Am. J. med. Sc.*, 1940, **199**, 495) record their observations on 300 cases of scarlet fever, which they divided into three groups of 100 each. The first consisted of mild cases which received non-specific treatment and general care. The patients in the second group, who were mild or moderately ill, were given neo-prontosil. Those in the third group, who were moderately or severely ill, were treated with convalescent serum. The writers found that neo-prontosil had less effect on the initial toxicity and pyrexia of scarlet fever than did convalescent serum, though both were found useful in the treatment of this disease

Reports of Societies

MODERN METHODS IN THE TREATMENT OF CEREBROSPINAL FEVER

At the meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine on May 14, Sir WILLIAM WILLCOX presiding, a discussion was held on modern methods in the treatment of cerebrospinal fever.

Dr. H. S. BANKS began by describing a series of seventy-one sporadic cases of all ages treated in 1937–8 by serum and sulphanilamide. There were twelve deaths, a gross mortality rate of 16.9 per cent. Group 1 infections accounted for 60 per cent. of the thirty-five cases typed. His conclusion was that a low dosage of sulphanilamide supported by a very high dosage of serum was not effective, and this led him to the view that serum treatment was not now necessary. In 1938–9 he used sulphanilamide or sulphapyridine or a combination of these drugs in eighty sporadic cases in comparable age groups from infancy to over 60 years. In this series there were five deaths—a gross mortality rate of 6.25 per cent. Group I infections accounted for 65 per cent. of the forty-three cases typed.

At the beginning of January, 1940, the epidemic came with a much higher proportion of very severe cases. He gave figures relating to the period January 1 to April 30 in which the same drug in similar dosage had been used, but with initial intravenous injection in some acute cases. The epidemic cases with which he had had to deal numbered 120. The age grouping was from infancy to 74 years, with a slightly higher proportion in older age periods over 30. There were twelve deaths, a gross mortality rate of 10 per cent. Group 1 infections accounted for 93 per cent. of forty-five cases typed, this corresponding with a much higher proportion of very severe acute fulminating and haemorrhagic cases. The twelve deaths fell into three groups: (*a*) cerebral pressure effects: encephalitic (6 cases), meningo-encephalitic (3), hydrocephalus (1); (*b*) dehydration from excessive vomiting (1); (*c*) intercurrent disease (1).

Dr. Banks gave the following clinical data comparing the chemotherapeutic treatment in the eighty sporadic cases of 1938–9 and the 120 epidemic cases of 1940:

Clinical Grouping	Sporadic per cent.	Epidemic per cent.
Mild	12	15
Moderate	48	27
Severe	37	41
Very severe	3	17
Cases showing eruption, per cent.	25	46
History before treatment:		
1–3 days	40	82
4–6 days	44	13
7 days +	16	5
Cases typed (43 sporadic, 45 epidemic):		
Group I	64	92
Group II	36	8
Not bacteriologically verified	7.5	20
Cerebrospinal fluid free from organisms:		
12–24 hours	77	83
24–48 hours	21	15
48 hours +	1	1

The complications and sequelae of chemotherapy in the epidemic cases were as follows: relapse or recrudescence (1), arthropathies (11), glycosuria (ketosis) (2), vesicles and ulcers (2), myocarditis (gallop rhythm) (1). There was deafness, absolute in one case and partial in one, and Jacksonian convulsions (recovered cases) in six. The direct effects were: haematuria—from sulphapyridine—(3), drug rash and fever (8), granulocytopenia (1). When vomiting was produced with sulphapyridine, instead of going on to the intramuscular injection of the sodium solution it was better policy to change to sulphanilamide, and this was done in twenty-six cases.

Statistics of the Epidemic

With the permission of the Ministry of Health Dr. Banks was able to show provisional figures for the epidemic of cerebrospinal fever for the first quarter of 1940:

	Cases	Deaths	Mortality rate
England and Wales:			
Civilians	4,388	1,040	23.7 per cent.
Non-civilians	705	80	11.3 ,,
London (crude)	331	101	30.5 ,,

The worst age groups were: infancy, 50 per cent. mortality; and over 45, also 50 per cent. mortality.

The conclusions reached as to treatment were, in the first place, that the drug of choice was sulphapyridine, but that this should be changed to sulphanilamide whenever it caused vomiting more than once, nausea, depression, or haematuria. The dosage previously recommended for the initial period was curative and safe, namely:

Age	0–	2–	5–	10–	15+
Daily amount in grammes	3	4½	6	7½	9

These had been worked out for sulphanilamide, and for sulphapyridine might be on the high side, but it was as well not to vary them. The initial period for mild cases was two days, for moderate cases two and a half days, for severe cases three days; thereafter two-thirds of this dosage for two days and one-third for a further two days; period of administration was six to seven days; loading dose, first, add half a gramme. The intravenous injection of the first two doses had theoretical advantages. The indications were in very acute cases and in the event of failure to give the drug by mouth or tube, but in practice the efficacy of this measure was doubtful. Intramuscular injection should be a last resort. The technique of administration of the drug and of adequate fluid by mouth or tube to comatose and resistive patients was of major importance, and should be mastered by doctors and nurses. No evidence had been obtained in favour of serum as an adjuvant.

South Wales Experience

Dr. G. E. HARRIES gave an account of over 200 cases of cerebrospinal fever which had been admitted to the City Isolation Hospital, Cardiff, since the beginning of the present year. The ages ranged from 10 weeks to 70 years. The cases were mainly (all except eighteen) amongst the civilian population. There were twenty-two deaths, a case mortality of 11 per cent. No death occurred among the eighteen non-civilian cases. The treatment consisted of four tablets of sulphapyridine orally on admission, repeated in four hours, then two tablets four-hourly for seventy-two hours. Further administration was determined by the findings in the cerebrospinal fluid, particularly the sugar content. Children under 12 years received half the adult dosage. Lumbar puncture was given daily until sugar content in cerebrospinal fluid was approaching normal. In comatose patients the tablets were crushed and given in nasal feeds. If vomiting occurred after ingestion of sulphapyridine or the patient was delirious and nasal feeding difficult, sodium salt of sulphapyridine was given intramuscularly. In fulminating cases the sodium salt was given intravenously in one-half to one litre of normal saline by the vacoliter drip method, together with 30 to 60 c.cm. meningococcal antitoxin. No serum was given intrathecally. Fluids were pushed in all cases, as dehydration appeared to contribute to a fatal issue. Complications included bronchopneumonia, hydrocephalus, arthritis, iritis, bilateral nerve deafness, orchitis, infective endocarditis, and mental sequelae. Herpes and petechiae were frequent. The organism when cultured belonged to Group I. He uttered a word of warning with regard to giving a small dose of sulphapyridine in suspected cases. The small dose appeared to be without effect on the meningococci, and the organisms were made sulphonamide-fast or sulphonamide-resistant, and later treatment was rendered less effective.

Dr. W. R. THROWER mentioned some investigations on the sodium salt of sulphapyridine. He said that, generally speak-

ing, intravenous therapy was not very popular, and if it were definitely stated that intramuscular medication was not to be used, no doubt many acutely ill patients would be denied certain compounds which would help to cure their condition. Fortunately, if care was taken, the human muscle was remarkably tolerant to otherwise quite irritating compounds, but the muscle must have an active circulation. If the circulation in the muscle was active, then the absorption of the compound appeared to be good, but if there was peripheral stasis there was a tendency for the compound—in this case the sodium salt of sulphapyridine—to "hang about" locally and not to be absorbed in the general circulation.

Types and Gradings

Lord HORDER, who said he had never previously heard so clear an exposition of the situation as that which had been given by the openers, described the term "meningitis" in respect of the severe cases as a misnomer. Very severe cases were, of course, cases of meningo-encephalitis—in fact sometimes they were quite clearly encephalo-meningitic, which explained the lethal nature of the disease. The other very lethal type of meningococcal infection was the rare one of meningococcal septicaemia without meningitis—septicaemia so rapidly fatal that at least the recognizable changes in the meninges had not had time to arrive at the moment of the patient's death. In between there were the gradations which Dr. Banks had described as very severe, severe, moderate, and mild. He thought they had all revised their views as to the necessity for lumbar puncture; all the same, he felt that some caution ought to be exercised in respect of patients who had come rather late under treatment and patients who had not pursued a satisfactory course during treatment. He suggested that the later the case came under observation the greater the care which should be exercised in considering whether lumbar puncture should not be done as a therapeutic measure, supplementing, of course, the chemotherapy. Whenever a patient developed symptoms suggestive of pressure the utilization of lumbar puncture as a therapeutic agent should be considered. He was glad that Dr. Banks had advocated the intraperitoneal route for increasing the fluids in some of these dehydrated patients. It was often a favourite method of his own, especially when veins were difficult to find.

Dr. MERVYN GORDON recalled some of the early work on this subject in which he had shared during the last war. In 1915 among the military cases a 50 per cent. mortality was recorded, and it only went down as a result of taking different specimens of serum and testing them separately on patients. Type I meningococcus, which was the main epidemic strain in 1914–15, had again manifested itself and had caused this severe outbreak, in contrast to the sporadic disease, in which Type II and aberrant types were concerned. One of the great difficulties was early diagnosis.

Flight Lieutenant DENIS WILLIAMS described a number of epidemic cases in which the effect of lumbar puncture had been investigated. One control group was treated with sulphapyridine and the other with sulphapyridine and lumbar puncture. Cases which did not have lumbar puncture were often in deep coma, restless, and extremely ill, but they all got better. A statistical analysis of the complications and sequelae had been made, and although the final figures were not yet available they pointed to the conclusion that, in the absence of some special indication, once the diagnosis had been made, if the patient was being adequately treated with sulphapyridine there was no need to do lumbar puncture at any time.

Dr. G. M. SLOT asked whether these cases must be in a fever hospital or could be nursed safely in the wards of a general hospital, and whether relatives in the houses in which they occurred should be advised to take the precautions adopted in other specific fevers.

Dr. J. A. STRUTHERS commented on the Ministry of Health figures for the epidemic in London. He believed that the mortality figures required considerable correction. Possibly, owing to evacuation, the 101 deaths might include persons who had never been notified at all or had been notified outside London but had died in a London hospital. That might be the reason for the apparent excessive mortality in London.

Sir WILLIAM WILLCOX thought that lumbar puncture, if the fluid was removed until the pressure came to normal, was of great value. He did not like giving intramuscular fluids which would cause necrosis of the muscle. He had always used a big dose of prontosil soluble at once intravenously, and had then gone on very much the lines that Dr. Banks had recommended—giving sulphapyridine or sulphanilamide by the mouth.

Dr. BANKS, replying to the question about the isolation of patients, said that contact infection was very rare. He had only once come across a case of a nurse who contracted the disease from the patient.

IMMUNIZATION AGAINST HUMAN RICKETTSIAL DISEASES

At a meeting of the Royal Society of Tropical Medicine and Hygiene on May 16, with the president, Sir RICKARD CHRISTOPHERS, F.R.S., in the chair, Dr. FREDERICK MURGATROYD read a paper on immunization against human rickettsial diseases.

In his introductory remarks the lecturer pointed out that recovery from rickettsial infection was accompanied by the development of considerable immunity, and that therefore protective vaccination was theoretically possible. In practice difficulties were encountered because living vaccines might be dangerous, and dead rickettsiae had relatively little immunizing power. Although considerable cross-immunity existed between classical and murine typhus, the enfeebled protective power of killed rickettsiae was manifest by a much stricter specificity of killed vaccines in the two diseases respectively. The difficulties might be overcome by using vaccines of living but attenuated organisms or relatively large numbers of killed organisms. Large numbers of organisms were not conveniently obtainable, as rickettsiae would not grow in ordinary media. They could, however, multiply enormously in appropriate arthropods, and Parker and Spencer utilized this to prepare a satisfactory killed vaccine against Rocky Mountain spotted fever from phenol-formolized suspensions of ground-up infected ticks.

Weigl prepared an effective typhus vaccine by emulsifying in phenol-saline the heavily infected intestines of artificially infected lice. By Weigl's technique Mosing prepared a specific vaccine which he thought had some action against a trench-fever-like disease. The labour involved limited production, and Weigl's vaccine had also been criticized on the general ground that killed vaccines only gave feeble, restricted, and short-lived immunity. Infections could also be developed in laboratory animals, and early attempts were made to use infected tissue suspensions as vaccines, but the small yields of rickettsiae when killed failed to vaccinate satisfactorily. As living organisms, although attenuated, might give rise to accidental infections, the danger in typhus was diminished by using the relatively benign murine virus which, owing to cross-immunity between it and classical typhus, could when living immunize against either infection. Blanc and his colleagues rendered living murine virus from infected guinea-pigs innocuous by treating it with ox bile; the virus was very unstable, and a modification had been introduced whereby dried infected flea faeces, which retained their virulence for long periods, were used as a source of virus for the vaccine. Nicholle and Laigret attenuated a murine virus from guinea-pigs and rats by drying and coating it with egg-yolk and olive oil. Laigret and Durand have introduced a further modification, using mouse-brain-passage virus. These vaccines normally produce only inapparent infections, reactions of vaccinial typhus being rare. Nevertheless, in certain circumstances such reactions may not be negligible. Zinsser, questioning the reliability of controlled attenuation, attempted to obtain sufficient quantities of rickettsiae for killed vaccines from animals heavily infected by having their resistance artificially

lowered. Thus Zinsser and Castenada, with murine virus in rats irradiated with *x* rays, obtained peritoneal accumulations of virus sufficiently rich to prepare a practical phenolized vaccine. Its protection against classical typhus was, however, poor, nor could they get satisfactory yields of classical virus from irradiated rats.

Efforts were being made to produce vaccines of various rickettsiae grown in tissue cultures and in the yolk sac and tissues of developing chicks; other experiments sought to obtain sufficient yields from animals by simpler methods. Durand and Sparrow recently reported an important technical advance whereby intranasal instillation of typhus viruses into etherized white mice results in a rapid and massive pulmonary infection, from which rich cell-free suspensions of rickettsiae can be prepared. Utilizing this, Durand and Giroud have recently prepared a formolized mouse-lung vaccine against classical typhus. Twelve persons vaccinated developed positive Weil-Felix reactions and agglutinins against suspensions of *R. prowazeki*, and the sera of eleven of them neutralized typhus virus when tested by Giroud's cutaneous serum protection test. It remained to be seen whether trench fever virus would develop in the mouse lung and whether a protective vaccine could be prepared by this method.

Sera from convalescents, from those vaccinated, or from animals artificially immunized might confer good but brief passive immunity against rickettsial infections; the curative action in declared infections was less certain. Combined sero-vaccination had been suggested in order to give typhus contacts immediate protection followed by active immunity.

Dr. G. M. FINDLAY said that among the many rickettsial diseases the most strenuous efforts had been made to immunize against exanthematic typhus. On a recent visit to Tunis he had had an opportunity of seeing some of the immunization methods now being employed against typhus fever. Unfortunately up to the present it had not been possible, as in the case of many viruses, to produce an attenuated variant of *Rickettsia prowazeki*. Immunization was, therefore, carried out by means of either living murine typhus rickettsiae or killed exanthematic typhus rickettsiae. The relationship of murine to exanthematic typhus rickettsiae was still uncertain; they were probably closely related though not antigenically identical. Infection with murine rickettsiae gave a solid immunity against exanthematic typhus, but unfortunately no such solid immunity followed injections of killed murine rickettsiae. Living murine rickettsiae had now been used on a large scale among the natives of North Africa. In Morocco Blanc and his colleagues had used murine rickettsiae treated immediately before injection with bile. When fresh guinea-pig tissues were used as a source of rickettsiae the vaccine was unstable. Latterly use had been made of faeces of rat fleas in which murine rickettsiae were present in large numbers; the faeces were dried and treated with sterile bile before use. It was possible that one of the bile constituents might kill many rickettsiae without destroying their antigenicity. In Tunis the murine rickettsiae from mouse brains were mixed with egg yolk and sodium phosphate. Some three million natives of North Africa had been inoculated by one or other of these methods, with, it was claimed, practically no serious reactions. In Europeans, however, severe and prolonged fever had occurred in about 30 per cent. of cases, the reactions often being indistinguishable from murine typhus; rickettsiae might be recovered from the blood. If murine typhus rickettsiae were injected during the incubation period of exanthematic typhus the development of the latter was not prevented. Despite the large numbers injected with living murine typhus rickettsiae, the value of the procedure in stopping epidemics of exanthematic typhus in the field was still uncertain, since critical experiments with adequate numbers of uninoculated controls were lacking.

Of the methods involving the injection of dead exanthematic typhus rickettsiae the best known was that of Weigl, but in addition to the necessity for large numbers of lice it was beset with many other difficulties. Rickettsiae grown on agar slopes with embryo tissues had now been used with satisfactory results in China on more than 150 persons. The mouse-lung vaccine prepared by Paul Durand and Giroud, however, was probably the most promising method. Ten persons had already been immunized by this method in London. Killed exanthematic typhus rickettsiae did not immunize against living murine typhus rickettsiae, but appeared to reduce very considerably the severity of the attack.

HYPNOTICS IN PSYCHOTHERAPY

At a meeting of the Medical Society of Individual Psychology on May 9, with Dr. ALEXANDER BALDIE in the chair, papers on analysis under hypnotics were read by Dr. HENRY DICKS and Dr. E. STUNGO.

Dr. Dicks said that owing to the war his research plans on this subject, which were undertaken in collaboration with Dr. Luff, had been interrupted. He therefore stressed the provisional nature of his conclusions. The work was based on the fact that many patients after anaesthesia with evipan and pentothal displayed a suggestible euphoric state which was very suitable for psychological investigation. The problem had two aspects: (*a*) a theoretical and diagnostic one—the discovery of psychopathological background and mechanisms; and (*b*) a therapeutic one—the shortening of analytical treatment by the artificial overcoming of resistance. These two aspects were not identical. Dr. Dicks described Campbell's technique, which he used, and the precautions adopted, which rendered the use of either evipan or pentothal safe, even with out-patients. He had found no material difference in the effects of the two drugs. In some cases the method had yielded surprisingly rapid insight into "depth mechanisms" which were entirely forgotten by the patients in their normal state. He quoted as examples (1) a case of paranoid jealousy in a married woman, where the essential projection mechanism and other important factors came to light in one session; (2) a case of claustrophobia in a young married woman where a complicated identification and displacement were discovered, the nature of which had been quite unsuspected. Both these patients had attended only once before.

As to treatment, evipan was most usefully applied in cases of hysterical conversion and amnesia, when it served as a more reliable substitute for hypnosis. Two cases were quoted in which rapid functional integration was achieved after two injections; coincidently, the psychological background of the conditions was made clear and subsequent analytical therapy thereby assisted. Dr. Dicks thought that this might prove to be a most valuable way of quick relief of many hysterical war neuroses, where time had to be saved. In other cases, where evipan was used to help in the overcoming of resistance during the progress of an analysis, or with the object of promoting emotional abreaction, the method had not been uniformly successful. This was again due to the unpredictable factor—that not all patients displayed the necessary "post-anaesthetic" state. Evipan had proved most valuable in a case of alcoholism, both as a substitute and as a means of facilitating the recital of extremely traumatic and distasteful early memories. Most of the analysis of this case had been conducted under the influence of the drug. Dr. Dicks also quoted an experiment designed to test the power of evipan to cause a person to divulge information he wished to withhold, such as might be practised on criminals or prisoners. This experiment had proved a failure, as the subject had complete control over his words on waking. He felt that evipan and allied substances provided a most useful weapon in diagnosis and as a research method into psychopathology. In treatment they could take the place of hypnosis in the rapid cure of hysterical phenomena, but were no substitute for the real work of analysis of underlying conflicts. The factors making for success or failure could not be defined at present, except that the existence of good rapport or a positive transference seemed important, and that the element of surprise was also useful. Patients were evidently able to form resistances to repeated injections. There was also a pharmacological limitation to frequent administration of what were, after all, toxic substances.

Dr. Stungo said that in his view it was possible to shorten the period of treatment and at the same time obtain satisfactory results by means of the technique he described. This consisted of injecting evipan sodium intravenously in subanaesthetic doses and producing a light narcosis or hynotic state. Evipan acted on the higher cortical centres and its effect was to inhibit inhibition. In that way resistance, conscious or unconscious, on the part of the patient was overcome. Thus he was enabled to obtain intimate details of personal history which did not depend on the discretion, judgment, or good taste of the patient. Information was neither suppressed nor distorted. Uncooperative patients became accessible; the development of transference was not as essential as with other psychological techniques.

Local News

ENGLAND AND WALES

Sir Henry Brackenbury

The following is an extract from the minutes of the County of Middlesex Education Committee, April, 1940:

> "The Chairman reminded the Committee that in consequence of his decision not to offer himself for re-election Sir Henry Brackenbury, who had been a member of the Committee for about thirty-six years, had ceased to be a member. It was resolved: That the sincere thanks of the Middlesex Education Committee be accorded to Sir Henry Brackenbury for the valuable services which he has rendered during an exceptionally long period of office as a co-opted member of the Committee."

The following is an extract from the annual report of the Executive Committee of the Association of Education Committees for 1939–40:

> "Sir Henry Brackenbury, having retired from his representation of the Middlesex Education Committee, ceases to be a member of the Executive Committee. Dr. Brackenbury was first elected a member in the year 1905, and has been a member of the Executive Committee up to 1940. He was President of the Association for four successive years of the last world war, the years ending in 1914, 1915, 1916, and 1917. Sir Henry's record of work, not only for education but also for the professional service which he himself adorns, is a record of which he may well be proud."

The Birmingham United Hospital

The Birmingham United Hospital includes the General and Jaffray Hospitals, Queen's Hospital, and the new Queen Elizabeth Hospital at Edgbaston. These are worked as one; this is exemplified in the honorary medical and surgical staff, who serve as a single group, the interchangeability of members between the units having been clearly established. For some weeks after the outbreak of war many hundreds of void beds were reserved from the ordinary peacetime establishment, and in addition large consignments of Government beds were received and made ready for expected casualties. Eventually, as the result of strong representations to the Ministry of Health, normal arrangements were to a large extent resumed, and at the date of the annual report (March, 1940) the number of beds in ordinary daily use at all the units was 1,155; the number reserved for emergency from ordinary peacetime establishment was 154, and there were 1,025 special Government beds standing ready.

When the great new hospital was opened recently the understanding was that as soon as it reached a complement of 200 to 250 beds any further expansion should be followed by a reduction at Queen's Hospital. At the moment Queen Elizabeth Hospital has upwards of 400 beds in use, but war conditions have prevented any corresponding reduction taking place at Queen's, and the arrangement is for the time being in abeyance. A proposal, however, is being made that Queen's should become a fracture and traumatic centre, for which there is an admitted need in a city and area such as Birmingham. About 280 to 300 beds would be required for the specialist treatment of fractures and early rehabilitation, and Queen's at a small expenditure could be admirably adapted for the purpose. In that event the Queen Elizabeth Hospital would yield to the city the full quota of "new" beds which it was always intended that it should. The United Hospital Board is prepared to consider transferring Queen's to some new body for the purpose, itself retaining, of course, the ownership of the buildings and the freehold site. On the financial side the annual report sounds a grave note. The United Hospital is a voluntary institution, still depending on the support of the public, although that support has become, under the aegis of contributory schemes, more corporate in nature. The gap between a more or less static subscription revenue and the increasing costs of a modern hospital has been valiantly filled for a time by the contributory method of support, which in Birmingham is second only in magnitude to the London achievement. But the Board now finds the burden of maintaining its units beyond the present range of its income. The hospital is, in fact, eating up its limited capital.

IRELAND

Medical Research Council of Ireland

The Medical Research Council of Ireland, under the chairmanship of Professor R. P. Farnan and the honorary secretaryship of Professor J. W. Bigger, according to its third annual report, is passing through a phase of financial difficulty, and has been compelled to alter its policy with regard to awards until more funds become available. The Council originally believed that a grant of £10,000 would be made to it for its work each year, but the appropriation during 1939 (received from the Hospitals Trust Board under the guarantee of the Minister for Local Government and Public Health) was only £5,000. A certain amount of unexpended balance has been added to this sum for use during 1939 and 1940, but when this is exhausted at the end of the present year the Council is likely to be compelled further to restrict its commitments. At present existing grant-holders are being supported so far as possible. Only eight new grants were made during 1939, but grants to eighteen workers were renewed for a further period. In the annual report brief summaries are given of the work done by the grant-holders, which embraces many fields of investigation, and more than twenty papers were contributed to medical and scientific literature by grant-holders during the year.

In the report of Crichton Royal Infirmary, Dumfries, for 1939 mention is made of various improvements, including the installation of a ward for the application of insulin therapy. Under the guidance of Dr. Mayer-Gross, formerly Professor of Psychiatry at Heidelberg University, this treatment was given to twenty-five patients suffering from schizophrenia during the later months of the year, and the results were satisfactory. The report stresses the importance of varying the procedure to suit the individual patient, and of combining it with psychotherapy. Eighteen patients, seventeen suffering from melancholia and one from mania and obsessional neurosis, were treated by prolonged narcosis. Small doses of somnifaine over a period of fourteen days were given, supplemented, when necessary, by paraldehyde or chloral hydrate. Convulsive therapy was employed not only in cases of schizophrenia but also in other psychoses and even neuroses, with especially gratifying results in cases of involutional melancholia. Up to the time the report was compiled 149 patients had been treated with cardiazol and seventy-four with triazol. It is stated that the latter drug appeared to produce the better results. The total number of patients under treament in the institution during the year was 1,346.

Correspondence

Treatment of Drowning and Electrocution

SIR,—I have read with interest Mr. R. T. Payne's article on the above subject. The laryngeal intubation method of giving oxygen and carbon dioxide referred to can only be carried out by a doctor; this in most cases would entail a fatal delay.

I should like to emphasize that in cases of electric shock a mixture of 93 per cent. oxygen and 7 per cent. carbon dioxide can easily and effectively be administered, through a well-fitting face-mask, by trained first-aid men who apply in conjunction Schäfer's method of artificial respiration, which of course is begun at the earliest possible moment. This combined treatment is in fact looked upon as the routine first aid for shock and asphyxia at mines. To provide for this treatment all mines under the Coal Mines Act, 1911, at which a hundred or more persons are employed underground are required by regulation to keep at least one reviving apparatus (not of the forced-breathing type), with a cylinder or cylinders capable of supplying at least twenty cubic feet of a mixture of carbon dioxide and oxygen containing not less than 5 per cent. and not more than 7 per cent. of carbon dioxide.—I am, etc.,

S. W. FISHER,
H.M. Medical Inspector of Mines.

Mines Department, Mill House,
Shaftesbury Avenue, W.1, May 20.

Artificial Respiration: Schäfer's Method

SIR,—I have read with interest the article by Mr. Reginald T. Payne on the treatment of drowning and electrocution (May 18, p. 819). It should be emphasized that the description quoted by him of "Schäfer's method of artificial respiration" is not that of the method of artificial respiration evolved and described by the late Sir E. Sharpey-Schäfer. The latter will be found correctly described in the current manuals of the St. John Ambulance Brigade, the British Red Cross Society, and the Royal Life Saving Society, among others.

In my own view the merits of the different methods of prone pressure artificial respiration are long overdue for more exact investigation, but in the meantime it should be recognized that there are fundamental differences in theory and practice between the two main varieties.—I am, etc.,

Redhill Division, St. John Ambulance Brigade, May 18. KENNETH WATSON.

SIR,—There is one point in Mr. Reginald T. Payne's interesting article on the treatment of drowning and electrocution which calls for further discussion. There is still considerable confusion in the minds of many people regarding the exact position of the hands in Schäfer's method of artificial respiration and regarding the principles underlying this method. Mr. Payne refers to a paper in the *Canadian Medical Association Journal* which suggests that the palms of the hands should be placed "on the small of the back with the fingers resting on the ribs and the little finger over the lowest rib." It would be difficult to place the hands in such a position owing to the downward slant of the ribs.

The Royal Life Saving Society have issued a special pamphlet describing Schäfer's method in detail, stating that their description is based on the actual manuscript (1931) of the late Sir Edward Sharpey-Schäfer which was specially written for the society. This description says that the hands should be placed "on the small of the patient's back, the wrists nearly touching, the thumbs as near each other as possible without strain, and the fingers passing over the loins on either side, but not spread out." The diagrams illustrating this were approved by the late Sir Edward Sharpey-Schäfer, and show the fingers pointing towards the ground with the little finger just clearing the top of the pelvis and the index finger lying over the last rib. The reason given for this method is that the abdomen is pressed against the ground, forcing the abdominal viscera against the diaphragm. This naturally makes the chest cavity smaller and produces expiration. The pressure is then relaxed, and the diaphragm descends again as the viscera resume their former position. This produces inspiration. The St. John Ambulance Association give similar instruction in their *First Aid Book*, while the British Red Cross Society state in their book that the hands should be placed "flat over the lower part of the back (on the lowest ribs)."

It would appear that insufficient attention has been given to the principles underlying Schäfer's method. There is no doubt that it is the abdominal cavity that must be primarily compressed in this type of artificial respiration, and that the effects on the size of the chest cavity are secondary to this. Now it is difficult to place the hands over the loins in the manner described in the R.L.S. Society's pamphlet without finding the index and perhaps also the middle finger in contact with the lower ribs. These fingers will not lie parallel to the lower ribs, but will cross them at an angle on account of the downward slant of the ribs from the spine. The diagrams on this subject never illustrate this point correctly. It would seem, then, that since the diaphragm is shaped like a dome, making the abdominal cavity extend high up underneath the lower ribs, compression of those ribs will lead to compression of the abdominal cavity; and if the abdomen is pressed against the ground the force of the compression will be transmitted to the diaphragm. It is therefore suggested that the hands should be placed in the way described in the R.L.S. Society's pamphlet.—I am, etc.,

London, W.11, May 18. H. STEPHEN PASMORE.

SIR,—May I venture to emphasize what Mr. R. T. Payne has to say about artificial respiration (May 18, p. 819).

The method he describes I have used and taught since 1912 and published in 1934. It differs essentially from that usually taught as regards the position of the hands of the operator. As commonly taught, the position of the thumbs is worshipped as though they were phallic emblems. In order to relieve the strain thereby imposed on the metacarpo-phalangeal joint of the thumb this joint is flexed and the point of the thumb is dug into the lumbar muscles. I have seen serious bruising produced thereby. To relieve the strain on the wrist-joint the operator flexes the elbows and exhausts himself by performing a series of press-ups.

The secret of success is, as Mr. Payne describes, the little finger corresponding to the line of the twelfth rib. In using this on large numbers of gassed and apparently drowned persons I have found that an operator of poor muscular development is able to continue the movements effectively for an hour or more.—I am, etc.,

London, W.1, May 20. THOMAS E. A. STOWELL.

Cerebrospinal Fever in Infants

SIR,—My colleagues and I at the Hospital for Sick Children, Great Ormond Street, have seen and treated over twenty cases of meningococcal meningitis in children during the present epidemic. The majority of these cases, before being seen by us, have been diagnosed by their private doctors. The older children, from 3 to 12 years of age, are nearly all correctly diagnosed, but, unfortunately, in the majority of children under 3 years of age the diagnosis has been missed. In the early stages of the epidemic a late diagnosis was often made at all ages, as the initial rash was sometimes mistaken for rubella and the case had received no treatment for some days after the onset.

From my observations on these cases I should like to make two emphatic points. The first is that no case of meningococcal meningitis should be treated out of hospital as (*a*) lumbar puncture must be performed for confirming the diagnosis, particularly for relieving pressure, and in many cases it is an advantage to drain away large quantities of pus; and (*b*) in treatment with sulphapyridine frequent blood counts

are necessary so that any fall in the granulocytes may be combated. I realize that few would care to treat this condition out of hospital, but I have seen one case in the last few weeks that had been diagnosed early and treated at home with sulphanilamide, instead of the much more efficacious sulphapyridine, without lumbar puncture. This case presented with hydrocephalus.

My second point is the difficulty in diagnosing meningococcal meningitis in children under 3 years of age. The disease in babies in the present epidemic has been presenting in a manner not yet described in textbooks. There is sometimes no history of fever, and, when present, it has seldom been above 102° F.; there has been no obvious neck stiffness; some cases have certainly no Kernig's sign; and the tension of the fontanelle is often difficult to judge in the screaming infant. But I have now seen six cases of persistent vomiting of seven to fourteen days' duration in children under 3 years of age which have been treated as dietetic errors or as "teething," and in which lumbar puncture gave a turbid fluid with pus, Gram-negative intracellular diplococci, and high protein —indicating spinal block with the definite possibility of hydrocephalus as a sequel. No two of these cases of meningococcal meningitis in children have presented the same clinical features, and they therefore require a comprehensive history and complete examination before the diagnosis can be reached without a lumbar puncture.

I write this in the hope that an earlier diagnosis of meningococcal meningitis will be made in many babies who persistently vomit, are constipated, have a transient erythematous rash, a high-pitched cry, are generally irritable, and may have only a slight rise in temperature or none at all. All our cases which have been treated within a few days of the onset have made an excellent immediate recovery, and my colleagues and I are at present following up all our cases of meningococcal meningitis seen and treated in this hospital. —I am, etc.,

London, W.C.1, May 17. JACK FIDDES.

Treatment of War Hysteria and Neurosis

SIR,—May I express my appreciation of the balanced and well-informed letter by Dr. P. L. Backus (May 11, p. 788). It is gratifying to learn that the methods employed during the last war by some of us, in advanced neurological centres as well as in base hospitals, are proving so effective again at the present time. In my own experience on the Somme *early* treatment was of the greatest importance, and reduced the evacuations to the base by over two-thirds (in the case of the Cambrai push in 1917 by over 90 per cent.), and every type of psychotherapeutic treatment—suggestion, persuasion, re-education, muscular relaxation with deep breathing, and mental analysis directed towards self-knowledge (autognosis)—was effective according to circumstances. I employed hypnotism only to clear up amnesias and to give release to suppressed emotion (abreaction), thereby abolishing accompanying psychoneurotic symptoms by removing their underlying cause, as Dr. Backus correctly states, and I treated only 15 per cent. of my cases in this way. I did not use hypnotism to remove symptoms directly, and therefore my method escapes the criticism which Sir Arthur Hurst brings forward against the use of hypnotism (May 18, p. 828).

In my opinion medical officers working in advanced neurological centres, equally with those working in base hospitals, should be chosen for their specialized knowledge of the theory and practice of psychotherapy.—I am, etc.,

Institute of Experimental Psychology, University of Oxford, May 19. WILLIAM BROWN.

SIR,—The letter from Dr. P. L. Backus (May 11, p. 788) inevitably raises the question whether in the treatment of the war neuroses there has been any advance since 1918. The list of methods he gives as being used in his hospital includes most of the forms of psychotherapy. His remarks indicate, however, a preference for the non-rational rather than the rational type of treatment, as shown, for example, in the institution of mass suggestion for all psychoneurotic patients daily at 6.15 p.m. As the need is affirmed as well for the more scientific investigation and adjustment of the background of these cases one cannot help wondering if Dr. Backus recognizes any incompatibilities in psychotherapy.

Therapeutic discrimination, it is to be assumed, will be used for the different types of cases. The mode of attack, for example, will no doubt be different for the recent cases and for those in which the symptoms have become fixed and established. One hopes, in addition, now that hostilities have begun on an intense scale and large numbers of psychiatric casualties are to be expected, that the attempt will be made to distinguish clearly between those cases which arise as reactions to the direct effect of explosives and those which develop from general stress and strain.

Finally, a problem which impresses me as of considerable importance is that of terminology. It would seem to be a needless handicap and obstacle to treatment to label these cases with such names as "neurotic" or "hysteria." It should not be an impossible task for the authorities to devise a nomenclature free from the implications of these and similar terms. Otherwise I am afraid there is likely to be a tendency to revert to the easy and familiar "shell-shock" of the last war. Rather than that even Meyer's horrible "pathergasia" would be preferable.—I am, etc.,

London, W.1, May 14. FREDERICK DILLON.

Feigned Epilepsy in Wartime

SIR.—Dr. Redvers Ironside's admirable article on feigned epilepsy in wartime (April 27, p. 703) has indicated most of the points of distinction between real epilepsy and hysterical or simulated conditions. But cases still arise in which the diagnosis is difficult. In these a determination as to whether the individual has a low or high threshold for epilepsy is of value.

An epileptic fit can be produced in almost any person by an intravenous injection of cardiazol solution. With constant conditions (strength of solution, speed of injection, etc.) the amount required to produce a fit is fairly constant for a definite individual. People can be divided into groups according to whether small, average, or large amounts of cardiazol are required to produce a convulsion. Sufferers from "idiopathic epilepsy" have a fit after 0.1 to 0.3 gramme of cardiazol; 0.5 gramme causes a fit in most normal people; deteriorated schizophrenic patients require 0.8 gramme or more to produce a fit. (These figures are based upon a 10 per cent. solution being injected at the rate of 1 c.cm. per second. They apply to men of 10 stone or more; weight is of minor importance.)

These results provide a test which may be applied in a case of doubtful epilepsy. If 2 c.cm. is injected and the patient has a fit he is probably an epileptic. If after 3 c.cm. he has no fit he is unlikely to be epileptic. Most sedative drugs, especially the barbiturates, cause a decrease in the liability to convulsions. Increased liability to fits cannot easily be simulated; it occurs in hypoglycaemia and can temporarily be induced by over-breathing. Further experience of this test is required before an exact assessment of its value can be made.

The procedure is drastic, but may be justified in suitable cases on the following grounds. An epileptic is not harmed by having one extra fit, especially a controlled one. A person exhibiting hysterical symptoms (for example, confusion or aphonia following an alleged fit) is likely to be benefited by even a subconvulsive dose of cardiazol. A malingerer will find the experience rather unpleasant, and this may diminish the incidence of this form of malingering.

To sum up, following an intravenous injection of 3 c.cm. of 10 per cent. cardiazol solution, given at the standard rate, three types of reaction may be distinguished: (1) In an epileptic subject the probable result will be an epileptic fit followed by a return to the previous mnetal state. (2) In a hysterical person there will probably not be a fit (though twitching may occur) and afterwards the mental state will be improved. (3) A malingerer will not have a fit and will probably afterwards reproduce his previous symptoms and mental state.—I am, etc.,

London, W.1, May 14. J. FFOULKES EDWARDS.

Complications in Rubella

SIR,—In addition to the articles to which attention has been called, I have seen another unusual manifestation of rubella in the present epidemic. Recrudescence of the adenitis may appear three or more weeks subsequent to the initial attack and after the glands have almost subsided. This may be accompanied by pyrexia and some constitutional disturbance.

I spent nearly two years in an infectious diseases hospital in France during the last war, and have no recollection of seeing the complications in rubella which are now attracting attention. But in one case, for no obvious reason, the sub-occipital glands suppurated, a complication which is generally stated never to occur.

It would be interesting if blood counts could be done in some cases in the present epidemic.—I am, etc.,

London, W.1, May 20. H. LETHEBY TIDY.

Types of Influenza

SIR,—This letter should perhaps be read in conjunction with my letter published in the *Journal* of April 30, 1938 (p. 976), which criticized certain remarks in the Annual Report of the Medical Research Council. The accompanying chart, which shows graphs of a respiratory group of illnesses, is taken from a larger one which shows a weekly analysis of all illnesses of the insured in this practice, chronics excepted. The methods employed were briefly described in my letter in your issue of July 15, 1939 (p. 138). Unfortunately the whole chart is too large for publication, but the explanation of the published chart with some additional particulars may suffice.

During the week ending December 23, 1939, 90 patients were seen, and it will be noticed from the chart that 32 of those belonged to the respiratory groups indicated—R.1, R.2, and R.3. At the peak of the wave, week ending February 17, 1940, 160 were seen, and of those 102 belonged to the respiratory group. On April 6, 1940, 94 were seen, and 29 belonged to the respiratory group. Thus, the figures of 58, 58, and 65 covered all the other ailments, and those do not show material variation from normal times. Therefore the

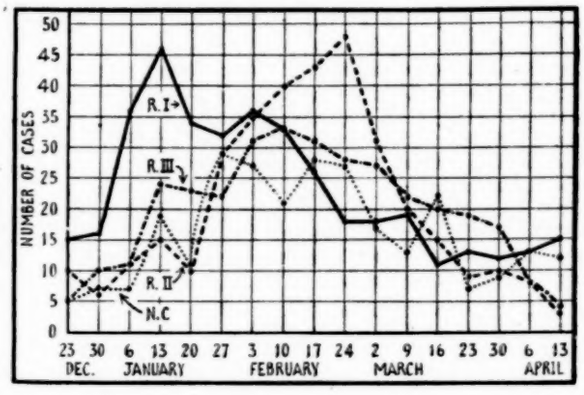


chart now published shows the types of illnesses which were the chief components of the epidemic wave.

It will be noticed that the chart shows four separate graphs. R.1 is essentially the common cold type of illness—cough and some sputum, perhaps nasal catarrh, but no temperature. R.2—the chief complaint is sore throat. R.3—cough with pains in various parts of the body. In R.2 and R.3 rise of temperature is common. N.C. shows the number of new certificates of incapacity which were issued during each week. The large chart reveals that the total number of incapacitated during the week ended December 23 was 31, and during the week ending April 6 the number was 30. The maximum number away from work at the height of the epidemic was 63.

On reference to the chart it will be noticed that during the week ending January 6 R.1 type suddenly rose from 16 to 36, without any increase in the weekly number of new certificates. The reason is that the R.1 group is composed of healthy people, who look fit and feel fit for their usual employment.

Your leading article (April 27, p. 694) refers to a paper in the *Lancet* of February 3, 1940, and that same number contains a leading article on "The Changing Face of Influenza." In the twenty years in which I have made records, so far as the essential features of these epidemics are concerned as seen in general practice, there has been no evidence of this, and if the clinical observations of Sir William Hamer, shown in a chart in the Royal Society of Medicine *Proceedings* of May 29, 1931, be studied and compared with this published chart, it will be seen that there is such a striking similarity that it must be taken as strong evidence that there has been no change in the main features of those epidemics during the past fifty years. In view of the methods I use it may be taken that this chart is a replica of the great wave of illness which swept this country in the first months of this year, and if the sudden rise of the R.1 wave heralded the onset of the epidemic, so did its fall herald the passing.

In regard to the characteristics of the R.1 group, one can safely state that if "a little extra nourishment" would enable them to avoid the illness I doubt if their stomachs would hold it. If they then went to bed "on the first feeling of illness," then many of them have next-of-kin quite as competent as the average sergeant-major to tell them tersely what was wrong with them. If they were given certificates of incapacity the R.M.O. would immediately declare them as not incapable of work; and, so far as housing conditions are concerned, none on this chart live in slums.

If R.1 is a type of illness which affects the healthier individuals in a community, and, though only incommoding them to a minor degree, yet leads to the periodic initiation and spread of incapacitating types of illness, then more than the writer of this letter must engage in the search for the explanation of the apparently grotesque.—I am, etc.,

Halifax, May 13. A. GARVIE.

What is Influenza?

SIR,—May I remind Dr. James Burnet (May 18, p. 830) that at one time the term "eczema" included many skin conditions which, through research, have been placed in definite categories, leaving eczema to cover the scrap-heap of the unknown, which may be further reduced. If Dr. Burnet has discovered a definite entity in the scrap-heap of influenza, it were better that he call it by a definite name and leave "influenza" to rule the scrap-heap for which it has etymologically the fullest justification.—I am, etc.,

Glasgow, May 19. W. MELVILLE CHRISTIE, M.B., Ch.B.Ed.

Treatment of Varicose Veins

SIR,—We are indeed fortunate to have the results of Mr. Dickson Wright's study and experience so concisely expressed in the recent articles in this *Journal*. In certain respects my findings have not run parallel with his, and as the subject is of wide interest I should be glad of the opportunity to state these variations.

First with regard to the sclerosing media. I hoped that from such an eminent authority an even stronger caution would be forthcoming concerning sodium morrhuate. My information is as follows: In 1930 a woman of 57 died suddenly after a small injection; since then other fatalities have been reported, some in this *Journal*. Four surgeons have related to me complete collapse immediately after its use. With regard to its effectiveness as a permanent obliterating agent, a follow-up of cases of more than a year's standing has revealed a high percentage of recurrence; a few of these were in the early series of simultaneous ligature and injection. For these reasons sodium morrhuate has been abandoned as a potentially dangerous and inefficient agent. Its only virtue seems to be that it is not so prone to cause an injection ulcer when it is placed outside the vein. Our standard of technique should be higher than this.

With regard to ethamolin, I have already heard of a recurrence after its use in a case of ligature and injection. The twin injection as described by Rodney Maingot of quinine and urethane followed by lithocaine has given excellent results for more than five years. With regard to the simultaneous ligature and injection, this has been practised since 1932 on 110 patients. They have all been kept in bed for four to five days after operation. No complications in the shape of pulmonary embolism have occurred in this series, so that the danger Mr. Dickson Wright mentions of the "mortality rate between 1 and 2 per cent. from pulmonary embolism which characterized the old-time operation" is probably overrated. The procedure is one of the most useful in the repertoire of the general surgeon, but there is no gainsaying that it is exacting in the absolute necessity for tying all the small branches about the termination of the internal saphenous vein, and the latter exactly flush with its union with the femoral vein. A ligature placed "somewhere" in the groin will be by-passed, the veins will recur, and the excellent method of ligature and injection will be brought into disrepute.

It is important to avoid injecting compensatory veins. A patient of mine had had an acute perforating appendix with general peritonitis, followed by obliteration of his external iliac vein. The enlarged superficial epigastric veins that appeared were compensatory and should on no account be touched.

Mr. Maurice Lee describes the injection fluids of Mr. Rodney Maingot and the ureteric catheter technique of Mr. J. B. Oldham in the ligature and injection operation; they are both first-rate methods.—I am, etc.,

London, W.1, May 14. HAROLD DODD.

SIR,—I was interested to read in Mr. A. Dickson Wright's article on the treatment of varicose veins (April 20, p. 665) of the disadvantages he describes following the injection of sodium morrhuate. I have found that low back pain is fairly common after large doses. I have also had two cases of transient haematuria following the injection of as large a dose as 12 c.cm. Subsequent injection in these patients of 5 c.cm. of 10 per cent. sodium morrhuate produced no ill effect.—I am, etc.,

B.E.F. H. S. SHUCKSMITH.

SIR,—Will you permit me to record my interest in Mr. A. Dickson Wright's (April 20, p. 665) and Mr. Maurice Lee's (May 11, p. 790) descriptions of their respective methods of producing thrombosis in, and apparent disappearance of, varicose veins by division and ligation of the internal saphenous at the fossa ovalis and accompanying "injection" of the veins distal to the division.

Many of us will have had first-hand experience of the immediate success of these techniques, but no evidence is offered us of any satisfying degree of permanent success. For how long afterwards have Mr. Dickson Wright and Mr. Maurice Lee followed up their cases? In my hands division and ligation of the saphenous vein at fossa ovalis only, though accompanied by "injection" of the veins in thigh and leg below the division, has been shown on examination of the patients six to twelve months later to be followed by recanalization of the veins in lower thigh and leg in over 60 per cent. of cases: a "success" equalling that obtained by injection only, and no more.—I am, etc.,

H. M. HANSCHELL,
Honorary Medical Superintendent,
London, May 10. Albert Dock Hospital.

Mobile A.R.P. Hospital Units

SIR,—With reference to Dr. James McWhirter's letter (May 4, p. 744) decrying mobile A.R.P. hospital units, as medical officer in charge of such a unit, which takes part in organized exercises every week, I have come to the conclusion that, properly equipped and with well-trained personnel, these units are going to be of the greatest use. It is very probable that during the air raids we expect to experience hundreds of casualties will occur in one small area. The difficulty of getting all suitable cases quickly to hospital will be great, and I am convinced that if cases of severe thigh fractures, chest injuries, etc., are removed without adequate first aid and anti-shock treatment on the spot, which only a mobile unit can provide, many casualties will arrive eventually at hospital moribund. A properly equipped van gives every facility for efficient sterilization, and in my opinion it is ridiculous to state that aseptic minor surgery cannot be carried out in such a unit.

In the exercises in which my unit have taken part (most of them in the black-out) the closest contact has been made with the other A.R.P. services—namely, demolition squads, wardens, and stretcher parties. The medical officer sees all the casualties and directs as to the immediate first-aid treatment and disposal. The advantage of having a medical officer on the spot ensures that cases requiring immediate hospital treatment are evacuated at once and not left while less serious cases are attended to after any necessary treatment has been provided by the mobile unit. Minor cases receive efficient aseptic treatment from the unit. Where exercises are properly carried out the other A.R.P. services come to expect the arrival of the mobile unit, and I am quite sure in an actual air raid will look forward to its speedy appearance.

With an efficient quartermaster, such as I am blessed with, the question of suitable accommodation causes little or no difficulty. He has surveyed every possible building that could be used, and for every small area in the borough has several alternative sites for setting up the unit. These are tried out at the various exercises and graded according to suitability. Finally I would suggest that in the end it will be found that mobile units are the most useful of the A.R.P. units, and should replace many of the fixed first-aid posts.—I am, etc.,

Blackheath, S.E., May 12. J. D. DILLON.

Bread

SIR,—In the West End of London—and it is a sad reflection on middle-class taste—good bread shops, like good book shops, are incredibly rare. Day after day we submit uncomplainingly to the consumption of our appalling white bread, partly because, on the whole, our tastes are perverse, and partly because brown bread as we make it sooner or later proves an irritant to the vagotonic alimentary tract.

Happily there is now a new milling process, known as the Clark milling process, that gives us a whole-wheaten bread which combines the non-irritant qualities of the best white bread with palatability and food values in excess of the best brown bread. In the ordinary process of milling the berry is disintegrated by crushing, a method attended by certain disadvantages, some of which will be referred to later. In the Clark process disintegration is accomplished by a combination of cutting and exploding, a method that reduces the whole grain to such a degree of fineness that it is no longer irritating and is readily assimilable.

Briefly, the method is as follows: A rotor, revolving at high speed, is provided with a series of finely serrated knife edges. In conjunction with these other series of stationary serrated knives are spaced at intervals tangentially to the rotor in such a way that a pocket is established in the intervening spaces, in which the contained air is subjected to increasing pressure. As the wheat grains are revolved into these spaces, and while the air pressure is progressively increasing, the cell envelopes are being repeatedly incised by the double series of extremely thin knife-blades. Throughout this stage, therefore, air under pressure is being forced through the incisions into the cell substance until, at the very moment of maximum compression, the air pressure is suddenly released, causing the intracellular contents to explode. The cycle of cutting, compressing, and exploding is repeated over and over again until the whole grain is pulverized into a fine powder.

The method involves a minimum of frictional heat, which is one of the disadvantages of mechanical crushing or grinding. Gluten, for example, is very sensitive to high temperatures. A good deal of it is damaged at 180° F., a temperature that is difficult to avoid in ordinary milling. The heat-labile vitamins are, of course, similarly affected. 'In the Clark process the temperature throughout remains comparatively low.

The resultant flour contains the whole of the wheat berry. Nothing is extracted except some 5 per cent. of natural moisture. Roughly, in the order of their position in the berry from periphery to centre, the following constituents are released: roughage or cellulose (2½ per cent.), maltose (3¼ per cent.), gluten (14½ per cent.), mineral salts (2¼ per cent.), starch grains. In spite of their state of extreme fineness the bran particles retain the curious springiness or spongy elasticity that is the most important physiological characteristic of bran. This property of bran is a factor in diet that no other food appears to possess. It seems to have a definite and irreplaceable function in the intestines, not so much perhaps in promoting peristalsis as in stimulating those large-scale mass movements of the colonic contents that initiate and condition defaecation. The mechanical irritation of the coarser forms of bran is entirely absent.

I venture to suggest that these considerations point to a case that merits full investigation by the Minister of Food. Unfortunately, it is doubtful if there is the slightest chance of improving the soldier's food under existing arrangements.—I am, etc.,

London, W.1, May 14. A. RUGG-GUNN.

Treatment of Syphilis

SIR,—I have recently received the *Journals* for November 4, 11, and 18, 1939, and have read with great interest the letters on the treatment of syphilis appearing therein. I should like to comment on them in general, and on that of Dr. A. O. F. Ross in particular.

To take Dr. Ross's letter: in the first place, Lieutenant-Colonel Burke's scheme for the treatment of early syphilis is not "far too long." On the contrary, it is not long enough. Secondly, in the fifth year after infection the term "clinical cure" can mean only (*a*) healing of the primary or secondary lesions; (*b*) absence of muco-cutaneous relapse; (*c*) absence of very early tabes, for the incubation periods of tabes, general paralysis, and syphilitic arteritis are respectively two to twenty years, ten to twenty years, and fifteen to twenty-five years (Price). Until patients have been followed up for these periods, then, there can be no question of "cure."

Thirdly, the phrase "One [unit] course invariably reverses the Wassermann in sero-positive cases, but to ensure cure . . . etc." surely carries with it a very sinister implication—namely, that the reversal of the Wassermann is a criterion of cure. Moore, in his monograph *The Modern Treatment of Syphilis*, is quite violent on this point. He says:

> "It seems unnecessary to add, although I know from bitter experience that the comment is still essential, that treatment must not be discontinued or even temporarily interrupted when a Wassermann reaction becomes negative. It cannot be too often or too strongly emphasized that the obtaining of a negative Wassermann reaction in early syphilis has nothing whatever to do with ultimate 'cure,' and that to stop or interrupt treatment at this point exposes the patient to a very grave danger of subsequent and possibly disastrous relapse."

Lastly, the intervals between the unit courses seem to me to be deliberately planned to bring the whole course into the category "irregular and inadequate treatment"—the worst possible combination. Stokes and Usilton (*Arch. Derm. Syph.*, Chicago, 1937, **35**, 377) have shown that the introduction of rest periods of more than one month during the first year of treatment "reduces the number of negative serological reactions obtained between the fourth and twelfth months from a best result of 68 per cent. to one of 40 per cent." They make no claim for 100 per cent. reversals in sero-positive cases. And lest it should be thought that my authorities are always American, may I quote the letter from Drs. R. C. L. Batchelor and R. Lees, in which the phrase "the safe interval of four weeks" is used.

Taken as a whole the letters illustrate the chaotic state of the treatment of syphilis in the United Kingdom. The League of Nations Health Organization published in 1935 the results of the deliberations of a committee of experts drawn from a number of countries, including the United Kingdom, based on the analysis of an enormous number of case reports. The final recommendation, printed in italics, reads: "The average sero-negative or sero-positive primary or early secondary patient should have at least five courses of '606.'" (For our purpose we may read for "606" "an equivalent amount of '914.'") This recommendation was made after the perusal of over 25,000 case reports.

It is the aim of concerted investigations, such as that made by the Health Organization of the League, to provide experience beyond the reach of the individual. Unless the conclusions are accepted the investigations are a waste of time. The logical end of non-acceptance is for each physician to rely on his own experience only, and each one should stop treatment of his first case of primary syphilis when the chancre has healed until he had proved for himself that relapse occurred. Drs. Batchelor and Lees refer to their own series of 675 cases. The actual number investigated by the League Organization was 25,623.

Surely it must be plain that syphilis is too big a problem for the individual to cope with: the length of follow-up alone precludes it. It is a national problem, and arrangements for the assessment of treatment should be made by the State. But the State cannot assess the results of treatment until there is co-operation between the physicians who treat the disease. The answer to the question, "What is adequate treatment of early syphilis?" will never be known until there is co-ordination of effort. It is not helpful for Dr. Ross to say that he has 100 per cent. cure after three unit courses spaced at staggering intervals, or for Lieutenant-Colonel Burke to say that a scheme of treatment which has "an efficiency index of 100" must (!) produce a cure rate of 100 per cent. Nobody knows what the cure rate is, and nobody will until a follow-up has been done that covers the incubation period of all late complications of syphilis, or the patients are dead of some other disease and are proved post mortem not to have been suffering from syphilis.

The present emergency has stimulated interest in the treatment of syphilis. It has been recommended, with some reason, that it be under the control of medical officers experienced in the treatment of venereal disease. Let these experts, then, decide on *one* scheme of treatment. It is already to hand. International experts have recommended such a course in the *Quarterly Bulletin of the Health Organization* of the League (1935, **4**, No. 1). Let this treatment be given and let records be kept.

It is too much to hope that the Government can start a bureau for recording results of treatment of syphilis at the moment. But if the records are there they can always be taken up. Many medical officers at present inexperienced will learn how to treat syphilis. They will revert to civil practice after the war. The work will go on. In due course the Ministry of Health (or whatever body is concerned) will be able to publish reports of *progress*. With our present haphazard lack of system no progress can be made. Syphilis is a disease in which the scientific and statistical approach is the only one that will lead us to the correct estimate of the results of treatment. Let us, then, travel this road.—I am, etc.,

S. J. WHEELER,
April 22. Surgeon Lieutenant-Commander R.N.

Diet and Paraplegia

SIR,—With reference to the paper by Captain R. L. Haviland Minchin (*Journal*, February 17, p. 253), in which he describes a paraplegia in South India, I have seen a number of these cases in the Madras Presidency, where they are often confused with disseminated sclerosis and have been erroneously ascribed to lathyrism poisoning. This type of case, I believe, is never seen in the Punjab and the Northern Provinces, where the diet is far better, and I would suggest that research in the aetiology of this condition, particularly with reference to the possibility of a vitamin deficiency, might be carried out, as this might throw considerable light on the obscure aetiology of many diseases of the central nervous system.—I am, etc.,

R. G. COCHRANE, M.D., M.R.C.P.,
Chief Medical Officer, Lady Willingdon Leper Settlement.

Tirumani, S. India, April 22.

Locating Foreign Bodies in the Limbs

SIR,—I believe the method of locating foreign bodies in the limbs so well described by Dr. Leonard Ley (May 11, p. 771) was introduced by Dr. Shenton of Guy's Hospital. He was good enough to show me the method at the beginning of the last war, and advised me to practise it by hiding a coin in a lump of dough. After a little experience it was easy to locate the coin exactly. Later on in the war I found the method very useful when I was in charge of the *x*-ray department of the Military Hospital, Plymouth.—I am, etc.,

W. H. STEELE, M.B., D.M.R.E.,
May 13. Hon. Radiologist, Newton Abbot Hospital.

Medico-Legal

DAMAGES FOR NEUROSIS

Those who desire to see the growth of mutual understanding between medical men and lawyers will rejoice at a judgment of the Court of Appeal in a recent running-down case.[1] His Majesty's judges may still now and again tend to interpret too strictly the rules in Macnaghten's case, but Lord Justice Slesser gave ample proof that he understands the nature of neurosis.

A young girl was injured in a taxicab accident and claimed damages, among other things, for neurosis. When the action was tried before Mr. Justice Stable the judge said she impressed him as having one major preoccupation in life—how ill she was. He was satisfied that if she could only persuade herself that she could do so, she could be working and living a perfectly normal life in a couple of months. If she had made a resolute effort, or if someone had made it for her, to get back to the normal active life of a normal active young woman, and if the circumstances were such that she was compelled to do so, there was nothing in the world to prevent it. Dealing with the quantum of damages, he thought she had only persuaded herself that every time she did something a little energetic it hurt her, but when she did something else—because the pain was really in her mind—it stopped aching. He thought she had derived a certain amount of enjoyment from contemplating the peculiar sort of existence which she had elected to live. He awarded £300 damages for the neurosis, and she appealed, saying that this amount was insufficient. The Court of Appeal ordered a new trial on the ground that the learned judge, having come to the conclusion that the condition was neurotic, allowed considerations to enter his mind which must have affected his estimation of the damage. Lord Justice Slesser dealt effectively with the argument of counsel that, the pain being neurotic and not organic, if the girl did not attempt to do the things which gave her pain or indulge in that particular kind of activity, then she would not suffer pain. That, he said, was exactly the dilemma with which counsel was faced. If the plaintiff could avoid the pain by not doing certain normal things, then she had been damaged because she could not do them. Conversely, if she attempted them and felt pain, then there was no basis for saying that the pain did not cause much suffering. Obviously, if the true conclusion was that she had suffered much pain for three years, she would be entitled to more damages than she would be on the view that she had suffered very little pain. The matter could not be determined conclusively by merely saying that she was neurotic. That she could not make the effort to live normally was part of the illness. In other words, the learned Lord Justice exploded the view that "neurotic" is a synonym for "unreal."

[1] Liffen *v.* Watson. 1940 **2** All E.R., 213.

CARDIAC SOCIETY OF GREAT BRITAIN AND IRELAND

The annual meeting of the above society was held in the Cardiac Department of the London Hospital on May 9, under the chairmanship of Dr. John Parkinson. After a debate on fitness for war service, a committee was appointed to investigate and make recommendations on the cardiac examination of recruits.

In the afternoon there was a demonstration of cases, *x*-ray films, and electrocardiograms. This was followed by a discussion on the effort syndrome, the problem being considered as it is now presenting itself in military service. Means of obviating incapacity from this cause were examined, as well as its treatment. The original communications in the programme, as arranged by the honorary secretary, Dr. Maurice Campbell, concerned auricular septal defect, special forms of infective endocarditis, and surgical aspects of hypertension with unilateral renal damage.

Universities and Colleges

UNIVERSITY OF OXFORD

In Convocation on May 14 a proposal to confer the honorary degree of D.Sc. on Dr. Mariano Rafael Castex of Buenos Aires was approved. It will be conferred by delegates elected by the Chancellor, Lord Halifax. Dr. Castex has been for more than twenty-five years professor of clinical medicine at the University of Buenos Aires, and was for a time Rector.

UNIVERSITY OF CAMBRIDGE

The Vice-Chancellor gives notice that a Congregation will be held on Saturday, August 3, at 2 p.m. Degrees may be conferred at this Congregation (1) upon supplicants for medical and surgical degrees who are qualified to proceed to degrees on that day under *Ordinances*, p. 3, section 9; (2) under Grace 8 of May 10, upon supplicants for degrees whose qualifications therefor include the emergency allowance of one or more terms or of an examination.

UNIVERSITY OF LONDON

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN

The following postgraduate scholarships will be awarded for the session 1940–1: (*a*) A. M. Bird Scholarship. £200 for one year tenable from August 1, 1940, to enable a medical graduate to obtain general experience in pathology; (*b*) Mabel Webb and A. M. Bird Research Scholarship. £200 a year for assistance in carrying on research. Further particulars and forms of application can be obtained from the warden and secretary of the Medical School, Hunter Street, Brunswick Square, W.C.1. Applications must be received by June 10.

UNIVERSITY OF LEEDS

The following appointments have been made to the staff of the Department of Surgery in consequence of the impending retirement of Professor E. R. Flint, F.R.C.S., from the chair of surgery and the directorship of surgical research: Professor P. J. Moir, F.R.C.S., who at present holds the chair of clinical surgery, becomes professor of surgery, and Mr. H. W. Symons, F.R.C.S., succeeds him as professor of clinical surgery. Mr. L. N. Pyrah, F.R.C.S., is appointed director of surgical research.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the Royal College of Surgeons of Edinburgh held on May 14, with Dr. H. M. Traquair, president, in the chair, the following, having passed the requisite examinations, were admitted Fellows:

J. C. Andreas, H. Barat, L. L. Bernstein, B. B. Bhatia, W. A. Coe, R. J. Crompton, B. J. D. Dunne, K. J. Eager, J. R. Frank, D. F. Freebody, J. G. O. Hamman, B. A. Jackson, J. O. Kelly, A. B. Morrison, K. S. Mullard, G. D. Oliver, G. I. M. Ross, L. M. Rouillard, G. Singh-Janda, E. Thomas, L. R. Williams, R. W. Wise, J. D. Younghusband.

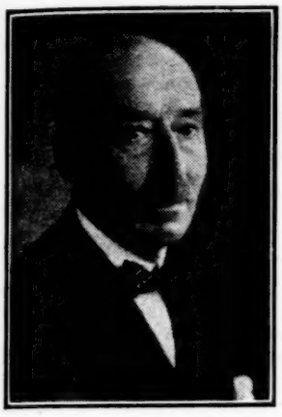
Obituary

L. B. RAWLING, F.R.C.S.

Consulting Surgeon to St. Bartholomew's Hospital

It was with much regret that we announced last week the death of Mr. L. B. Rawling in his seventieth year.

Louis Bathe Rawling was educated at Clifton, Caius College, Cambridge, and Bart's. He qualified in 1896, obtained the Brackenbury surgical scholarship, and became house-surgeon to Alfred Willett and Harrison Cripps.



Having taken the F.R.C.S. in 1900, and been Jacksonian Prizeman in 1902 with an essay on fractures of the skull, in 1904 he was appointed assistant surgeon to St. Bartholomew's Hospital. He assisted in turn D'Arcy Power, Bruce Clarke, C. B. Lockwood, and Anthony Bowlby, and became full surgeon on Bowlby's retirement. During the war of 1914–18 he was O.C. Surgical Division of the 34th General Hospital, was in India, and was also attached to the 1st and 4th London General Hospitals. Rawling's special leanings to cerebral surgery were exemplified by his appointment as surgeon to the West End Hospital for Nervous Diseases, and by the publication of numerous neurological articles and of his book, *Surgery of the Skull and Brain*. He was thrice Hunterian Professor of the Royal College of Surgeons, and was for many years a member of the Court of Examiners, examining for the F.R.C.S. diploma and also at Cambridge. His interest in anatomy (he had been senior demonstrator at Bart's) was lasting, and resulted in the publication of *Stepping Stones to Surgery*, to which Mrs. Rawling ably contributed illustrations, and of the earlier and better known *Landmarks and Surface Markings*, famous to countless hosts of students, an anatomical "best-seller," and a masterpiece of omission and compression. In addition to numerous reprints the eighth edition of this work, first published in 1904, has just appeared.

Rawling retired in 1932, and had since been living in South Devon. Recently his heart had been giving him trouble. To Mrs. Rawling and to his two daughters will go out the profound sympathy of all who knew and loved him.

A former house-surgeon and chief assistant writes:

As a clinician, Rawling was distinguished in the highest degree for clinical flair and an uncanny way of being right. As a surgeon, he was a careful, quick, and gentle operator, and had the artist's gift of knowing when to stop. His judgment was unerring, and he was never obsessed by the craze for big operations, being often happy, during the period of wholesale gastrectomies, to point to a patient in his wards who was having medical treatment. Again, one of the most valuable lessons learnt from him was, when in doubt, in the case of a "chronic abdomen" of vague type, to try the effect of paraffin and a belt rather than leap in with a knife. Such sanity and surgical restraint are rare. But when courage was needed (and a good deal of it may be required to put radon seeds into the pituitary fossa) he would face formidable tasks from which others shrank. He was a first-class clinical teacher, his rounds and lectures being always enjoyable, and his teaching broad-based, lucid, and practical.

It was especially as a man that Rawling endeared himself to all with whom he came in contact. His modesty and personal charm, his warm and friendly humanity, his humour, his easy manner and ready accessibility made him the most popular and beloved of men alike to colleagues, students, and nursing and hospital staff. He was the perfect gentleman. His sayings and the stories told of him are legion, and the fact that he was commonly known by his nickname of "Jumpy" (derived from a nervous trick of fingering the lapels of his coat) testifies to the familiar and affectionate popularity which he enjoyed. With all this went a transparent honesty of thought, word, and deed. He was a stern critic of himself, but always kindly and tolerant where the failings of others were concerned.

For some seventeen years an annual dinner had been instituted in his honour, where "L. B. R." and his past and present house-surgeons foregathered and recaptured past joys. Old stories and anecdotes were told and old scenes relived. These were delightful evenings, enjoyed as much, it seemed, by him as by us, and it was his wish that these meetings of the Rawling Club, as it is called, should continue after his death, though we ventured to dissent from his suggestion that the club should then be named after the acting head of the "firm," by recording our unanimous decision that it should continue as the Rawling Club.

[The photograph reproduced is by Beiny, London.]

DUGALD CAMPBELL WATT, M.D.

By the sudden death of Dr. Campbell Watt at Bulawayo on April 16 at the age of 81 the British Medical Association loses a stalwart and devoted veteran worker and the medical profession of South Africa a man who not only was widely known and highly respected but was held in affection by all who knew him. He took the M.B., C.M. of Glasgow in 1887 and his M.D. in 1902. In 1889 he settled in Pietermaritzburg and joined the Association. In the city of his adoption he became a leading practitioner; was physician to Grey's Hospital; along with his wife he took an active part in local affairs, and was made a J.P. He was an ardent patriot who combined with a strong attachment to the old country an equally strong devotion to the land of his adoption. He took a characteristically active part in the Boer War and rose to the rank of Lieutenant-Colonel in the South African Medical Corps. Throughout the Union he was known as an active medical politician and a strong believer in the British Medical Association. He was responsible in 1907 for the formation of the Natal Branch, of which he was successively secretary and president; and he was the main inspiration of the movement which culminated in the formation of the South African Medical Committee, the first body to co-ordinate the Association's work in South Africa. He was its honorary secretary from 1911 to 1917 and president in 1925–6. These eminent services were recognized by his election in 1923 as a Vice-President of the Association, a distinction which gave him great pleasure. But the crown was put on his record by the active, and indeed the pivotal, part he played in maintaining and consolidating the Association at a time when its existence in South Africa was threatened by a movement for a totally South African and independent body. It was during this period that I came to know him well, during my mission to South Africa in 1925–6 to try to find a *modus vivendi* which should satisfy both parties—so far as a compromise ever can. That this effort was successful was very largely due to the

pioneer work of Campbell Watt combined with the diplomacy of A. J. Orenstein. Since that time he has been one of my most welcome correspondents. In the last letter I received from him, sent from the new home in Southern Rhodesia to which he retired a few years ago, he, for the first time, lamented the fact that he was an old man. Previously he had always referred to that disability with characteristic humour. But this time he said: "What a fraud the man was who said, 'They also serve who only stand and wait,' for now I realize for the first time in my life that I am in no position to serve my country, either standing or sitting—nor even *lying*."

This brief account of my old friend's activities would not be complete without a reference to his many contributions to the medical press in South Africa. These were frequent, generally autobiographical, always interesting and gay and mellow, and sometimes they even dropped into poetry of a humorous character.

A. C.

Your issue of March 16 (writes "A. F." from South Africa) brought to me the sad news of the death of my friend Major-General G. G. TABUTEAU, at New Delhi in India. I met him first in France in 1916, when, after service in the Dardanelles and on the Somme, I was transferred to No. 11 Stationary Hospital at Rouen. Though only a major at the time he was in charge of the hospital, which was partly R.A.M.C. and partly a Scottish Red Cross unit. I had only been there a few weeks when he made me his adjutant and gave me charge of his principal surgical wards. Thus I saw him from both sides of the picture. The dual constitution of his hospital called for the exercise of considerable tact and diplomacy in keeping both sections running smoothly side by side, yet he was always equal to the occasion. He was friends with all but showed undue favour to none. As a surgeon he was a rapid, neat, and successful operator, while he was at home in every branch of the complicated subject of medicine. He personally inspected all the hospital discharges, and he had a standing bet with us that we would never pass an out-of-the-way disease through without his spotting it. Only once did he have to pay up during my stay at No. 11, and then it was some very obscure eye condition. It was his proud boast that he never refused a convoy of wounded or sick. Though we were full to overflowing he would manage to find room somewhere. I still remember his coming to me after the influenza epidemic of November, 1916, and remarking that as we were the only two of the staff who had not had a day off, he would toss me as to which of us should have the first day off to spend in bed. He was looking below par, and as I was busy at the time I told him to take first go. Two days later he was in bed with a high temperature, which eventually developed into an acute attack of blood poisoning, during which he developed abscesses in his knee, buttock, and shoulder. For several days his life was in the balance, but his pluck enabled him to weather the storm, and he was no sooner on the mend than he wanted to get back to work again. He point-blank refused to be sent to England to convalesce, but returned to us long ere he was fit and still with a gaping wound in his knee. He was, indeed, a man above the common ruck, and well deserved all the honours that came his way.

By the sudden death of Dr. THOMAS SNOWBALL Burnley has lost one of its best-known medical men and the British Medical Association an old and very active member who had been chairman of the local Division. He died in an Edinburgh nursing home in his sixty-eighth year after undergoing a serious operation. Dr. Snowball took his Arts degree in Aberdeen in 1892. He afterwards decided to enter the profession of medicine, and read for his M.B., Ch.B., which he obtained in 1897. After serving as resident physician at the Royal Infirmary, Aberdeen, he determined to take up eye work and went to Germany to study, and later was clinical assistant at the Royal London Ophthalmic Hospital. In 1902 he began practice as an ophthalmic surgeon at Burnley. He was afterwards associated with Dr. Edmondson in this special branch of surgery, and eventually acquired a large consulting practice. For many years he was associated with the Burnley Victoria Hospital, first as a clinical assistant and afterwards on the full staff as an honorary ophthalmic surgeon, which post he retained until his last illness. He was a scholar of no mean repute, and was the author of several monographs in his own branch of medicine. Further, he undertook translations of Oeller's *An Atlas of Rare Ophthalmoscopic Conditions* and Wenckebach's *Arrhythmia of the Heart*. In this last he was associated with the late Sir James Mackenzie. For thirty-five years Dr. Snowball was the honorary secretary of the Aberdeen University East Lancashire Graduates' Association, and in this connexion he made numerous friends. Added to this he had a kind and generous disposition which was greatly appreciated by the young graduates coming from his old university. His advices to them were greatly valued, and he will be much missed by the association which he did so much to foster. The association has lost a valued colleague, and the sympathy of all his old friends will go out to his widow and two daughters.

GEORGE WILLIAM SHORE, O.B.E., M.D., who died on May 7, aged 52, was educated at Dulwich College and received his medical training at King's College Hospital, where after qualifying in 1911 he held house appointments. He obtained the M.B., B.S.Lond. degrees in 1914 and was then appointed Sambrooke Medical Registrar. At the outbreak of war in 1914 he joined the R.A.M.C. and served for five and a half years, during much of which time he was in Mesopotamia. He was also attached to the Fourth London General Hospital, in which there were 3,000 beds, as assistant registrar, and later as registrar. He worked for many years as assistant medical officer at Springfield Hospital, and for several years acted as lecturer in mental diseases to the Westminster Hospital, where he also conducted the clinic for early mental disorder. In 1933 he was appointed medical superintendent of the Middlesex County Mental Hospital at Shenley, the latest hospital of its kind. Perhaps Dr. Shore's most outstanding characteristic (writes a colleague) was his great humanity and big-heartedness. This was evident in every contact with both the staff and patients. Although the opening of a new and vast hospital placed upon his shoulders a heavy burden, he had a happy facility of treating what might have seemed to be trivial details as his immediate and personal concern, especially when these affected the welfare of his patients. The building of Shenley Hospital coincided in time with some of the most striking advances in mental science, and Dr. Shore was not slow to encourage the full utilization of these new methods. The complete organization of the hospital had only just been completed when war was declared, and a large section of the hospital was taken over by the military authorities. As a lieutenant-colonel in the Territorial Army Reserve of Officers he assumed command, thus adding to his already heavy responsibilities; he was later promoted colonel. This added strain took a great toll of his health, but his indomitable energy never deserted him.

Dr. ARTHUR BREEDON WADE, who died on May 11 at Ryde, was at one time prominent in the local work of the British Medical Association. He was for eight years honorary secretary of the Southampton Division and afterwards honorary secretary of the Isle of Wight Division, and had been president of the Southampton Branch in 1899. Dr. Wade studied for the medical profession at St. Mary's Hospital, London, and the University of Edinburgh, taking the M.R.C.S. and the L.S.A. diplomas in 1876 and the M.B., C.M. degrees of Edinburgh in 1880. After settling in practice at Southampton he was elected to the surgical staff of the Royal South Hants Hospital, and held for a time the post of medical officer to the Southampton Dispensary. He attained the rank of surgeon-colonel in the 2nd Volunteer Battalion of the Hant Regiment and received the Volunteer Decoration; he was also an honorary associate of the Order of St. John of Jerusalem.

Dr. GEORGE WHITLEY MICKLETHWAIT, who died on May 10 at St. Albans, was for many years one of the leading medical practitioners in York. He came of Yorkshire stock on both sides of the family and was educated at Charterhouse, at Trinity Hall, Cambridge, and at St. Bartholomew's Hospital. He took the English Conjoint diplomas and the B.Ch. of Cambridge in 1902, proceeding to the M.D. in 1907. He held house appointments at the West London and the Paddington Green Children's Hospitals, and then practised for a time in Shropshire before moving to York, where he was elected to the staff of the York County Hospital and became senior physician. Dr. Micklethwait was a past president of the York Medical Society, and served on the Special Diseases Subcommittee of the York Health Committee some twelve years ago.

Dr. CHRISTOPHER KILVINTON MOWLL, whose recent death at the relatively early age of 47 will leave many friends to mourn his loss, was the son of a well-known Kentish family. He was educated at King's School, Canterbury, at Cambridge, and at the London Hospital, and he served in Mesopotamia in the last war. In 1921 he joined the Headquarters Medical Branch of the Post Office, and had soon endeared himself to both his colleagues and patients. In 1937 he left the Post Office on being appointed Chief Medical Officer to the Southern Railway. H. H. B. writes: Mowll was a big man physically, with deeply held evangelical religious views; and he never travelled without a Bible in his pocket or dispatch case. He was a very well-known lay preacher, and particularly interested in Sunday school and missionary work. But he never obtruded his religious views, although they were implicit in his every action. Anybody who needed his help could be certain of getting it, and the profession has lost in him a singularly fine staunch type of high-souled and conscientious Englishman.

We regret to announce the death of Dr. VIOLET KELYNACK, medical secretary of the Medical Women's Federation, which took place at Harpenden, Herts, on May 17. Clara Violet McLaren, daughter of James Grieve McLaren, was born in Calcutta, and was educated at Bedford High School and at the Medical College for Women, Edinburgh. She graduated M.B., Ch.B.Ed. in 1903 and was for a time clinical assistant at the Evelina Hospital for Sick Children and assistant medical officer to the National Children's Home and Orphanage. Besides her work for the Medical Women's Federation she was a member of the council of the Society of Inebriety, of which her husband, Dr. T. N. Kelynack, was for many years honorary secretary; they married in 1904.

Dr. GILBERT PERCY HUMPHRY, who died at Old Court, Abergavenny, on May 17, was born at Wisborough Green, Sussex, in 1885. He studied at St. George's Hospital, and after qualifying in 1909 as M.R.C.S., L.R.C.P., held in turn the posts of house-surgeon, house-physician, resident obstetrician, and resident anaesthetist. He served in Mesopotamia, Egypt, and France during the last war with the rank of captain R.A.M.C. Dr. Humphry was honorary physician to the Abergavenny Cottage Hospital and had been a member of the British Medical Association since 1914.

The British Standards Institution have just issued a specification in the A.R.P. series for anti-gas ointment. The object of the standard is to provide a guide as to the quality of a satisfactory ointment for anti-gas treatment. The ointment is the type generally known as bleach ointment, which is compounded by mixing stabilized bleaching powder with white mineral jelly. The specification defines not only the properties of the ointment itself but also those of the bleaching powder and the mineral jelly from which it is made. The manner in which the tests are to be carried out to determine whether the material conforms to the specified properties is described in a number of appendices. Copies of this specification may be had from the British Standards Institution, 28, Victoria Street, S.W.1, price 2d. each (4d. post free).

The Services

MEDICAL EXAMINATION FOR THE SERVICES

Mr. Ernest Bevin, the new Minister of Labour and National Service, has appointed a committee to advise him on medical questions arising out of the examination of men by civilian medical boards under the National Service (Armed Forces) Act, 1939. The committee will consider questions on which authoritative advice is desired, the principal of which are the detection of cases of pulmonary tuberculosis and of effort syndrome. On these two questions it will be asked to advise immediately. The members are Lord Horder (chairman); Surgeon Captain G. H. M. Gimlette, Admiralty; Dr. W. Haward, Acting D.M.S., Ministry of Pensions; Dr. T. W. Kennedy, Senior Regional Medical Officer, Department of Health for Scotland; Colonel J. A. Manifold, A.M.S., War Office; Dr. Geoffrey Marshall, nominated by the Royal College of Physicians; Group Captain D'Arcy Power, Air Ministry; Dr. N. F. Smith, Medical Officer, Ministry of Health; Mr. G. C. Veysey, Ministry of Labour and National Service; and Dr. R. E. Whitting, Divisional Medical Officer, Ministry of Health.

DEATHS IN THE SERVICES

Lieutenant-Colonel VICTOR EDWARD HUGH LINDESAY, Bengal Medical Service (ret.), died at Burley, New Forest, on May 2, aged 70. He was born on May 22, 1869, the son of the late Frederick Lindesay, D.L., J.P., of Loughry, County Tyrone, was educated at Owens College, Manchester, and at St. Mary's Hospital, and took the M.B., Ch.B. of Victoria University of Manchester in 1893. He entered the Indian Medical Service as surgeon lieutenant on January 29, 1896, became lieutenant-colonel on January 29, 1915, and retired on May 24, 1924. Most of his service was spent in civil employ in Bihar and Orissa. He served in the China War of 1900, receiving the medals, and received the Royal Humane Society's bronze medal for saving a man from drowning on July 29, 1903, when stationed in North China. He had been a member of the British Medical Association for thirty-two years.

Lieutenant-Colonel PERCY CLARENCE DOUGLASS, R.A.M.C. (ret.), died suddenly at Eastbourne on May 8, aged 65. He was born on March 23, 1875, was educated at St. Mary's Hospital, and took the M.R.C.S., L.R.C.P. in 1900. He entered the Royal Army Medical Corps as lieutenant on July 26, 1900, reached the rank of lieutenant-colonel on December 26, 1917, and retired in December, 1928. He had been a member of the British Medical Association for twenty-seven years.

Lieutenant-Colonel WILLIAM ERNEST MCKECHNIE, I.M.S. (ret.) died at Hastings on May 13, aged 65. He was born on August 12, 1874, at Cronstadt in the Orange Free State, and was educated at the University of Edinburgh, where he acted as demonstrator of anatomy in the school of the Royal College of Surgeons, and graduated M.B., Ch.B. in 1897. Entering the Indian Medical Service as lieutenant on July 27, 1899, he became lieutenant-colonel on January 28, 1919, and retired on January 23, 1922. He served in the China War of 1900 (medal) and in the Mohmand campaign on the North-West Frontier of India in 1908 (Frontier medal with clasp). In 1911 he was posted to civil employ in the United Provinces, but reverted to military employ at the beginning of the war of 1914–18. After the war he served for a short time as civil surgeon of Lucknow and professor of midwifery at King George's Medical College, Lucknow. He had been a member of the British Medical Association for twenty-two years.

Major ALEXANDER STABLES, R.A.M.C. (ret.), died at Pitgaveny, Elgin, on May 10, aged 80. He was born at Cawdor on March 12, 1860, and was educated at the University of Edinburgh, where he graduated M.B., C.M. in 1883, also taking the M.R.C.S.Eng. in 1884. Entering the Army as surgeon on January 31, 1885, he became major on January 31, 1897, and retired on January 31, 1905. He served in the Sudan, in the Frontier Field Force, in 1885–6 (medal and Khedive's bronze star); in the Chitral campaign of 1895, with the relief force (Frontier medal with clasp); and in the Tirah campaign of 1897–8 (two clasps). He rejoined for service in the war of 1914–18, from August 8, 1914. He had been a member of the British Medical Association for thirty-eight years.

No. 18

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 4, 1940.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1940					1939 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	377	29	83	2	10	32	3	13	1	—
Deaths		5	8				—	—		
Diphtheria	701	31	257	42	40	784	78	148	32	12
Deaths	15	1	11	3	1	25	1	4	1	—
Dysentery	80	5	31		—	32	2	21		—
Deaths			—	—	—			—	—	—
Encephalitis lethargica, acute	4	1	—	1	—	2	—	—	—	—
Deaths		1	1				2	1		
Enteric (typhoid and paratyphoid) fever	33	3	10	4	1	24	1	7	7	2
Deaths	—	—	—	—	—	1	—	—	—	—
Erysipelas			49	12	5			57	3	5
Deaths		—	2				—	—		
Infective enteritis or diarrhoea under 2 years										
Deaths	26	5	8	3	2	37	3	9	8	1
Measles*	5,286	48	426		161		28	140		1
Deaths	7	—	2	—	2	3	—	—	4	—
Ophthalmia neonatorum	109	13	27		—	80	8	29		1
Deaths										
Pneumonia, influenzal†	883	45	9	7	11	773	71	13	2	8
Deaths (from influenza)	35	4	1	—	2	50	6	4	—	1
Pneumonia, primary			269	13				192	10	
Deaths‡		59		10	26		11		13	6
Polio-encephalitis, acute	2	1				2	—			
Deaths		—					—			
Poliomyelitis, acute	2	—	2	1	—	3	—	—	—	—
Deaths		—	—				—	—		
Puerperal fever	3	3	14	1	—	3	3	10	2	—
Deaths		1					—			
Puerperal pyrexia	153	17	29		4	173	17	14		—
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	946	27	122	41	62	1,665	176	285	51	73
Deaths	1	—	—	—	—	1	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—				—	—	—
Whooping-cough*	630	8	36		8		403	298		28
Deaths	1	—	—	1	1	13	1	6	3	2
Deaths (0-1 year)	344	47	72	27	35	319	43	71	30	20
Infant mortality rate (per 1,000 live births)						50	37			
Deaths (excluding still-births)	4,857	796	720	206	179	4,735	881	663	161	145
Annual death rate (per 1,000 persons living)			13.4	13.8	15.7	11.6	11.3	13.4	10.8	12.7
Live births	6,572	1,052	960	399	262	6,565	1,200	974	356	259
Annual rate per 1,000 persons living			19.4	26.6	23.0	16.1	15.4	19.7	23.9	22.7
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No. 18

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 4, 1940.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1940					1939 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	377	29	83	2	10	32	3	13	1	—
Deaths		5	8				—	—		
Diphtheria	701	31	257	42	40	784	78	148	32	12
Deaths	15	1	11	3	1	25	1	4	1	—
Dysentery	80	5	31		—	32	2	21		—
Deaths			—	—	—			—	—	—
Encephalitis lethargica, acute	4	1	—	1	—	2	—	—	—	—
Deaths		1	1				2	1		
Enteric (typhoid and paratyphoid) fever	33	3	10	4	1	24	1	7	7	2
Deaths	—	—	—	—	—	1	—	—	—	—
Erysipelas			49	12	5			57	3	5
Deaths		—	2				—	—		
Infective enteritis or diarrhoea under 2 years										
Deaths	26	5	8	3	2	37	3	9	8	1
Measles*	5,286	48	426		161		28	140		1
Deaths	7	—	2	—	2	3	—	—	4	—
Ophthalmia neonatorum	109	13	27		—	80	8	29		1
Deaths										
Pneumonia, influenzal†	883	45	9	7	11	773	71	13	2	8
Deaths (from influenza)	35	4	1	—	2	50	6	4	—	1
Pneumonia, primary..			269	13				192	10	
Deaths‡		59		10	26		11		13	6
Polio-encephalitis, acute	2	1				2	—			
Deaths		—					—			
Poliomyelitis, acute ..	2	—	2	1	—	3	—	—	—	—
Deaths		—	—				—	—		
Puerperal fever ..	3	3	14	1	—	3	3	10	2	—
Deaths		1					—			
Puerperal pyrexia ..	153	17	29		4	173	17	14		—
Deaths										
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	946	27	122	41	62	1,665	176	285	51	73
Deaths	1	—	—	—	—	1	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—				—	—	—
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Letters, Notes, and Answers

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Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Secretary, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS.—All communications should be addressed to the Advertisement Manager (office hours, 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and communications with reference to subscriptions should be addressed to the Secretary, B.M.A. House.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111.

The TELEGRAPHIC ADDRESSES are

EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*

SECRETARY, *Medisecra Westcent, London.*

The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh;* telephone 24361 Edinburgh), and of the Office of the Cumann Doctúirí na h-Éireann (I.M.A. and B.M.A.), 95, Merrion Square, W., Dublin (telephone 62550 Dublin).

QUERIES AND ANSWERS

Residual Trace of Albumin

"M.B., CH.B.ED." writes: Could anyone tell me if there is any treatment for a slight trace of albumin left after a haemolytic streptococcal infection of five years? No casts to be seen, only an occasional red cell under the microscope, which would account for the albumin. No other pathological disturbance.

"Blae Type"

"MEDICAL OFFICER" writes: I have a patient who is said to be suffering from what is called the "Blae Type" (Professor William Stephenson), characterized by listlessness, chilblains, pain at periods, excessive periods. Her haemoglobin is over 100 per cent. The treatment ordered is two grains of potassium permanganate thrice daily after food. Can any of your readers provide references to this condition?

Informing the Young

Dr. A. P. LAYCOCK (Fulham, S.W.) writes: "L. B." (May 4, p. 755) will find what he requires in an excellent book by the late Dame Mary Scharlieb, *How to Enlighten our Children* (price 3s. 6d.). Furthermore, most useful literature of a suitable kind can be obtained from the Alliance of Honour, 112, City Road, London, E.C.1.

One-sided Glossitis

"E. O. F." writes in reply to "Ardua" (May 18, p. 837): If he keeps a piece of wool soaked in a solution of glycothymolin containing eight drops of pure carbolic acid to the ounce applied to the tongue the glossitis will rapidly disappear.

LETTERS, NOTES, ETC.

Survival from Drowning

"H. C. B." writes: In his article on the treatment of drowning and electrocution (May 18, p. 819) Mr. Reginald Payne states that recovery is possible after immersion for a period of half an hour or more. If this means that a patient can be under water continuously for thirty minutes and still recover, I and many of your other readers, I am sure, would be much interested to read of details of some such cases.

*** In the article in the *Canadian Medical Association Journal* to which Mr. Payne referred there are reports of two cases in which recovery occurred after submersion in water up to half an hour. The writers of the article state that of the widespread misconceptions about the possibility of resuscitation in cases of drowning one is that immersion for more than four or five minutes is inevitably fatal.

Rubella in Infancy

Dr. S. J. HADFIELD (Beer, Devon) writes: Dr. A. Freitag's instance of a case of rubella in an infant of 8 weeks (May 11, p. 798) prompts me to cite the case of my own daughter, who developed a typical rubella rash at the age of 18 days. Another member of the household had it about two weeks previously, and my wife and the infant contracted it from her. I also had a case this winter in an infant 10 weeks old.

Dr. C. L. MAINGAY (Aylsham, Norfolk) writes: At the end of January I saw a male infant barely 5 weeks old with a typical rubella rash and enlarged occipital glands; there was no pyrexia or loss of appetite. The mother had had an attack of rubella, which became evident about two days before the infant's rash developed.

Boiled Water for Babies

Dr. CHARLES CORFIELD (Bristol) writes: I find the practice among nurses of giving boiled water to babies so widespread that I should like to ask through the medium of your columns, Why are they taught it? What purpose it is thought to serve, except in cases where the source is suspect, as in river or well water, is difficult to understand. To me the objections are threefold: (1) The few organisms and moulds in a public water supply help to build up an immunity. (2) It is de-aerated by boiling. (3) Being of no value it gives unnecessary work and perhaps a false sense of security.

Essential Oils in Sterilization

Dr. H. KIRSCHBAUM (Tel-Aviv) writes: With regard to the question of sterilization of syringes and needles by "adding a small amount of thymol to the methylated spirit," as suggested by Dr. N. Pines (*Journal*, February 3, p. 191), T. J. Mackie's report, "An Inquiry into Post-operative Tetanus—A Report to the Scottish Board of Health," on the effectiveness of the essential oils for sterilization is of interest. Mackie writes: "The essential oils are relatively weak germicides and have been little used for disinfection. Oil of cinnamon has been considered one of the most effective, while oil of eucalyptus is stated to be of lesser value in this respect (Omeltschenko, 1891). Experiment 27. *B. mesentericus* spores viable after 120 days' exposure to oil of cloves. Experiment not continued further. Experiment 28. *B. tetani* spores viable after exposure for 131 days to oil of cloves (not tested during the intervening period). Experiment 30. *B. mesentericus* spores found viable after 131 days' exposure to oil of eucalyptus. Experiment 31. *B. tetani, V. septique,* and *B. sporogenes* viable after ten days' exposure to oil of eucalyptus; not viable after exposure for 131 days (not tested during the intervening period). These substances are practically inert as bactericides for sporing bacteria." These experiments clearly show that exposure to solutions of essential oils has little influence on the sporing bacteria present in the commercial spirit.

Undigested Vegetable Matter in Intestinal Obstruction

Mr. J. S. LYLE (Bradford) writes: Mr. H. Agar's letter (*Journal*, April 13, p. 637) on vegetable matter causing intestinal obstruction reminds me of a case in which the presence of a congenital abnormality of the gut was a predisposing factor. About a year ago, while R.S.O. at Bradford Royal Infirmary, I had a case of acute abdominal pain of a few hours' duration in a young woman who had missed two periods. She was rather collapsed, and was regarded as a case of ruptured ectopic gestation. Laparotomy was performed an hour after admission, but to my surprise there was no sign of blood in the abdomen. The cause of the symptoms was found to be undigested orange pulp impacted in a Meckel's diverticulum and the adjacent ileum, which was contracted firmly on the contents. About a foot of the gut was affected, and the Meckel's diverticulum was resected. The patient later confessed to having eaten two oranges rather hurriedly the previous evening. The pregnancy was continued normally while in hospital.

We are asked to state that a revised reprint of the article on the "Anatomy of the Bronchial Tree," by Mr. J. Hardie Neil and Drs. W. Gilmour and F. J. Gwynne of Auckland, N.Z., published in the *Journal* of March 11, 1939 (p. 495), may be obtained on application to Messrs. H. K. Lewis and Co., 136, Gower Street, London, W.C.1.